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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

CONTENTS

Frontispiece and Sketch—Edgar Leonard Patch 239
Editorial:
Reorganization of the American Pharmaceutical Association 243
The Value of Drugs in Internal Medicine—Barker 245
Contributions to the Knowledge of Forest Products—Kremers 251
Contributions to the Knowledge of Forest Products—Graybeal and Kremers 252
The Influence of Methods of Distillation on the Commercial Value of Oil of American Wormseed—Russell 255
Detection of Diethylphthalate in Whisky—Lyons 262
Tentative Plan for the Reorganization of the American Pharmaceutical Association 266
Volatile Oils in Pills—Greenish and Pearson 270
Acetylsalicylic Acid in Sodium Citrate Solution—Leech 275
Soluble Compound Spirit of Orange and a Simplified Process for Aromatic Elixir—Jones 277
Superior Ointment of Ammoniated Mercury by the Wet Process—Jones 278
Suburban Pharmacy Can Be Made Profitable if Conducted in Accordance with Advanced Business Ideas—Ames 280
What Should Be the Attitude of the Pharmacist toward the Various Cults, 'Isms, 'Practics, 'Pathies, and Healers—Gidley 285
Historical Fragments—Kremers 290
A Pharmaceutical Examination in 1697—Hockert 294
The Department of the American Conference of Pharmaceutical Faculties 297
Council Business:
A. Ph. A. Council Letter No. 10 302
Bibliography of Pharmaceutical Research—Arny 303
Proceedings of the Local Branches 308
Committee Reports 310
Editorial Notes 313
Obituary 315
Societies and Colleges 315
The Pharmacist and the Law 317
Book Notices and Reviews 319
Advertising—Cover pages 2, 3 and 4 and pages I to XIV.

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THE SEVENTIETH ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN CLEVELAND, OHIO, DURING THE WEEK OF AUGUST 14, 1922.

The 1922 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Cleveland during Convention Week

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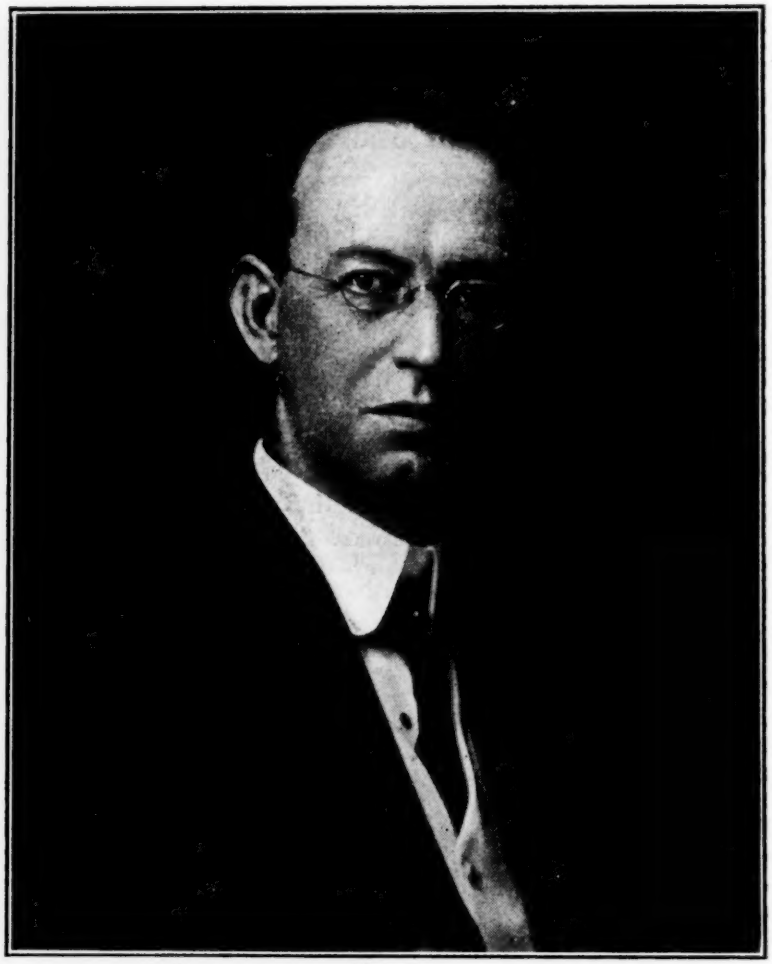
EDGAR LEONARD PATCH

STONEHAM, MASS.

Affiliated with the American Pharmaceutical Association in 1872
President of the A. Ph. A., 1893-1894
Chairman Scientific Section 1890-1891



Edgar L. Patch

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XI APRIL, 1922 No. 4

EDGAR LEONARD PATCH.

There are events in the life of our 50-year member that have a relation to periods in that of the American Pharmaceutical Association. The meeting of pharmacists in New York at which preparations were made for organizing the Association was held in the fall of 1851; Edgar L. Patch was born in Spencer, Mass., December 2, 1851. Fifty years ago, when the subject of this brief sketch had just graduated from the Massachusetts College of Pharmacy, he affiliated with the A. Ph. A., in the year of the prior Cleveland meeting.

The 1893 meeting of the Association was more or less international in character; the World's Congress of Pharmacists and Seventh International Pharmaceutical Congress was held in Chicago under the auspices of the American Pharmaceutical Association; it was at the close of this convention that Professor Patch was elected president of the Association, and he presided at the Asheville, N. C., meeting. He has passed his seventieth birthday; the Association is nearing it; Mr. and Mrs. Patch will, D. V., celebrate their fiftieth wedding anniversary next year.

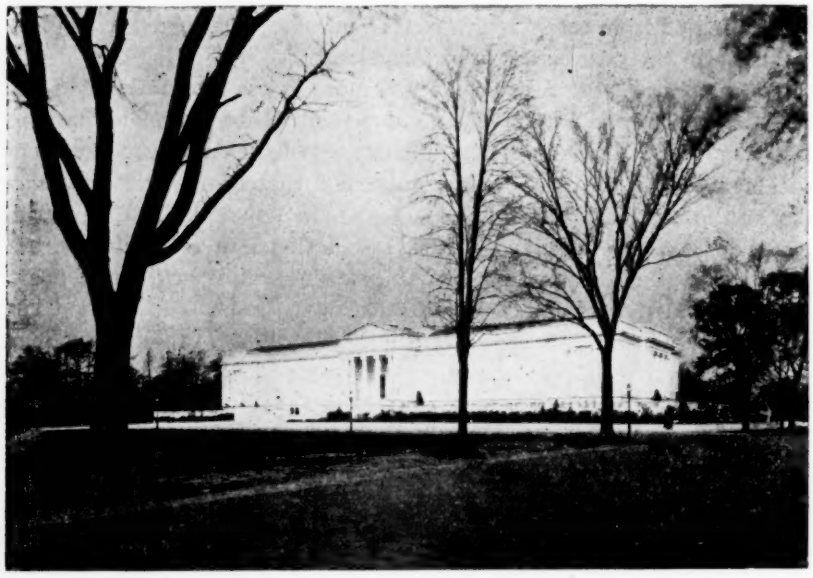
At the age of 18 years, E. L. Patch formed, with the late Henry Canning of Boston, the firm of Canning & Patch, one of the best known prescription pharmacies in New England; in 1895, on account of increasing responsibilities in his manufacturing business, which had been organized in 1888, he withdrew from the firm.

Soon after graduation Mr. Patch was made treasurer and registrar of his alma mater, and in 1879 he became a member of the faculty as professor of the Theory and Practice of Pharmacy and, in 1888, also director of the pharmaceutical laboratory. He continued in this work until 1892, when his personal interests necessitated his retirement from engagements that required the time demanded by the growing business of which he is president and treasurer. He held a number of important offices in the state pharmaceutical association, and was for several years president of the Boston Druggists' Association. His activities in the American Pharmaceutical Association are indicated by the 1902 A. Ph. A. Index—the titles of his contributed papers and reports require about a column; they relate to pharmaceutical chemistry, practical pharmacy and dispensing, laboratory

technique, legislation, etc. For a number of years he was chairman of the Committee on Quality of Medicinal Products. The last paper he contributed to the Section on Historical Pharmacy is printed on p. 202 of Volume X, and is entitled "Some Boston Druggists of Fifty Years Ago."

Professor and Mrs. Patch have a family of five sons and one daughter, and grandchildren. All the sons, excepting Dr. Arthur L. Patch, who is a practicing physician and a graduate of Brown, and Harvard Medical College, are graduates of Massachusetts Institute of Technology. Prof. James A. Patch was, until a few years ago, head of the department of chemistry and physics in the Syrian Protestant College of Beirut, Syria. During the war Claude E. served the United States as efficiency man on the Emergency Fleet work. Ralph R. is vice-president and general manager of the E. L. Patch Co.; Ernest L. is a graduate of Annapolis Naval Academy. The daughter, Esther M., a graduate of Mount Holyoke, is teaching science in high school.

Professor Patch has always been active in matters which speak for the good citizen in country, state and municipality. For many years he was secretary of the Town Finance Board, he is a hard worker for the church, and ever concerned in community affairs; the surroundings of Stoneham speak largely of his love of nature's beauty, his civic pride, his interest in the welfare of others and the enjoyment he derives from their happiness. E. G. E.



CLEVELAND MUSEUM OF ART.

The Cleveland Museum of Art overlooks the lake in Wade Park. It is one of the most complete art museums in the country, its collection of armor being second only to one in the United States. The museum is adjacent to the Cleveland School of Art, Western Reserve University, and Case School of Applied Science. It aims to aid in furthering the study of art in elementary and advanced schools.

The American Pharmaceutical Association will meet in Cleveland during the week of August 14, 1922.

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

REORGANIZATION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE report in this issue of the JOURNAL on the tentative plan for the reorganization of the AMERICAN PHARMACEUTICAL ASSOCIATION is one of the most important and far-reaching ever presented affecting pharmacy in general, the parent pharmaceutical organization, the state pharmaceutical associations and, in fact, all pharmaceutical interests, and should receive most careful study.

All pharmaceutical activities depend largely for their development and growth on the service of pharmacy—there is coördination of buying and selling in the pharmacy; of dispensing and manufacturing; of pharmaceutical education and publicity. The additions and deletions of the Pharmacopoeia and National Formulary are responsive to the determinations made in the pharmacy in coöperation with medical practitioners. This is a circumscribed view that may be taken of the amplified plan submitted for reorganization of the American Pharmaceutical Association, the aim and purpose of which are to coördinate all fields of pharmaceutical endeavor into an organization representative of Greater American Pharmacy.

Reorganization, by extending and improving the service of the American Pharmaceutical Association, is not a new thought; it has been the message of several presidential addresses,[1] of reports,[2] and, earlier, found expression in the creation of the House of Delegates.[3] A realization that the underlying plan could be made to serve in a larger way resulted in the action taken at New Orleans whereby the Executive Committee of the A. Ph. A. was charged with the duty of "presenting to the Council, in 1922, a comprehensive plan of reorganization." The importance of the duty assigned to the Committee speaks for the careful consideration given by its members to the subject, and the various state associations and the Association members are now requested to discuss the proposed tentative plan and, thereafter, submit personal views and reports of their discussions which, "it is hoped, will be of service to the Committee in drafting its final report and to the Council in disposing thereof." For further reference the addresses of the Chairman and Recording Secretary of the House of Delegates will be found in the October number of the JOURNAL A. PH. A., 10, 785–790, 1921, and other articles of the same volume bearing on the subject of reorganization are printed in the May number, p. 327, July, p. 495, and October, p. 729.

If the plan is acceptable and meets with approval, prompt action will expedite organization. The existing organization of the American Pharmaceutical Asso-

[1] F. J. Wulling, JOUR. A. PH. A., 6, 778 and 854, 1917; A. R. L. Dohme, *Ibid.*, 7, 488 and 665, 1918.

[2] H. P. Hynson, *Ibid.*, 4, 524 and 844. 1915; 5, 234 and 951, 1916; E. L. Newcomb, *Ibid.*, 9, 449, 1920.

[3] JOUR. A. PH. A., 1, 928 and 1056, 1912.

ciation is understood; the plan presented by the Committee after most careful deliberation is commended to the thoughtful consideration of the readers, knowing that the importance of the subject and of the report will be fully appreciated; as in all comprehensive undertakings worthy of promotion and in which diversified interests are coördinated, engagements entered into demand continued coöperation and delegate coöperative responsibility.

The two associations, Iowa and Minnesota, which have met this year voted favorably for affiliation and pledged their support to the movement creating the contemplated larger organization of American pharmacy. The action taken at the Cleveland meeting will be influenced by that of state associations; it is therefore earnestly requested that all of them discuss the proposed plan, criticize constructively, if it meets with favor; if not, point out in a helpful way how bigger things may be accomplished by the American Pharmaceutical Association, and give their counsel and support in an effort to reach conclusions which can be made effective. The growth of an association is in the development of something better on the work it has accomplished.

The tentative plan* has been carefully outlined by the committee, and the explanatory statement accompanying it has been made with due regard for the views of all concerned and inviting discussion. Plans may be prepared with nicety of detail and fitness, and the machinery may exist for conducting the work of organized pharmacy, but the value of both depends on the motive power, and the motive power is a deep coöperative interest, the personality of the executive officers of the several organizations, state, divisional and national, together with the membership of these organizations.

E. G. E.

THE PUBLIC'S ESTIMATE OF PHARMACY.

Druggists themselves have so emphasized the commercial features of their business that the public has lost sight of the professional side. Other lines of trade are insistently teaching the public that it is not necessary or economical to buy drug store supplies at a drug store.

Public opinion is shaped by publicity; there can be no question about that. The average person accepts as true that which appears in print. The printed word is the only means of information open to most people. Pharmacy can be glorified or denounced by the printed word. When the public is warned to accept no substitute the inference the public draws is that pharmacists as a class are substitutors, always seeking the opportunity to sell some inferior product, even a dangerous one, for their own gain.

For the past year some manufacturers have been persistently telling the public about the professional character of the drug store and have been urging the people to increase the efficiency and usefulness of the drug store by giving it more of their patronage. They originated the expression, "Your druggist is more than a merchant," and they are using the influence of home magazines to make that sentence a great slogan for pharmacy and to impress the public that it should "Try the Drug Store First."

Every pharmacist owes it to his profession to do something to put pharmacy in its true light before the public. It rests with them to determine just what to-morrow's opinion of pharmacy is going to be.—Extracts from a paper by A. J. Aberwald, before 1922 meeting of Minnesota Pharmaceutical Association.

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* See pp. 266–269, this issue of the JOURNAL.

THE VALUE OF DRUGS IN INTERNAL MEDICINE.*

BY LEWELLYS F. BARKER, M.D., BALTIMORE.

We are now witnessing a cautious revival of the use of drugs in the treatment of disease. During the last half of the nineteenth century pharmacotherapy fell more or less into discredit, owing (1) to a reaction against the scandalous abuse of the "shotgun prescription," (2) to the general therapeutic nihilism that followed the rise of studies in pathologic anatomy, and (3) to the growing recognition of the importance of forms of therapy other than treatment by drugs. Though in some quarters the denial of pharmacotherapy was pushed to extremes, it is now generally admitted that the movement against the indiscriminate and non-critical use of drugs, to the relative exclusion of other and often more efficacious methods of therapeutic intervention, was necessary and timely, in order that the more rational therapy of our period might emerge.

In the therapy of to-day, based on more accurate diagnosis and on enlarged conceptions of pathologic physiology, etiology and pathogenesis, a new hopefulness prevails. We make use of a host of methods that are found to be trustworthy for healing, for palliating and for preventing. Along with diet, baths, climate, air, light, heat, exercise, massage, electricity, Roentgen rays, radium, serums, vaccines, mechanical appliances, surgery, nursing, and psychic and social influence, drugs are gradually finding their proper place in the therapeutic armamentarium of the medical practitioner. For among the drugs of various sorts, including both natural substances and pure chemicals provided by separation or by synthesis, there are agents that can now be employed with great confidence and often with the happiest results.

DUTY OF THE INTERNIST.

In the management of patients and in the treatment of their diseases, it is our duty as physicians to see to it that we do not neglect to make application of any of the agents at our disposal that may reasonably be expected to help. Briefly, to survey the help offered to the physician in his daily work by modern pharmacotherapy, is the object of the present symposium. The time allotted will, of course, not permit of any detailed discussion as to the use of single drugs. It is, I take it, the intention of those who planned the symposium that it should deal rather with general principles that underlie the use of drugs in therapy, and with certain examples of the application of these principles in practice. Others are to speak of the use of drugs by surgeons and by specialists; this paper has to do with their use by the internist.

Man desiring to help his suffering fellow must not lack—indeed, has never lacked—courage. Think, for example, of the boldness of the surgeon who annihilates the consciousness of his patient and then, without trepidation, cuts into the abdomen, or excises a goiter, or removes a brain tumor. The physician also must have bravery—one might almost say audacity—when he attempts by the use of a drug to intervene favorably in the disturbed physical, chemical and biologic processes of the human body in disease.

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* Presented as part of a symposium before the Section on Pharmacology and Therapeutics at the session of the American Medical Association, Boston, 1921. *Jour. Amer. Med. Assoc.*, Volume 77, p. 1151.

COMPLEXITY OF CHEMICAL PROCESSES.

Man's body is the most marvelous chemical laboratory in the world, a laboratory made up of several thousands of billions of separate work rooms, in each of which the amount and kinds of work done differ somewhat from those in each of the others. No two liver cells probably are precisely alike in their chemical activities. In a single mucous membrane, the chemistry of the constituent gland cells differs markedly from the chemistry of the constituent nerve cells, connective tissue cells and smooth muscle cells. Within the channels of communication that carry fluids and solids about the great laboratory from work room to work room, chemical changes are constantly going on in the transported materials. Even the walls, the beams and the furniture of the billions of work rooms are themselves constantly undergoing chemical change. We are awed enough by the complexity of the chemical processes that go on in health; but let us not forget that in the diseased body, which is the province of the pharmacotherapist, this complexity becomes manifold. Into this apparent infinite welter of chemical transformations (though, in reality, orderly and ultimately knowable) goes the drug that the physician administers in the hope of curing, regulating or ameliorating. Its administration surely signifies courage on the part of the physician who has such a conception of the body's chemistry. The task he attempts is truly Promethean. Is it not to try "to defy Power, which seems omnipotent?"

THE DEVELOPMENT OF PHARMACOTHERAPY.

Man's needs have been so urgent, however, that medical men everywhere, and at all times, have not hesitated to defy powers when they seemed malevolent; and drug therapy has, despite its besetting difficulties, become one of the successful methods by which medicine "folds over the world its healing wings."

The clinical experience of the centuries slowly supplied an important body of facts regarding the nature of disease and man's power to control it, but the formation of true guiding principles for pharmacotherapy had to await the rise of modern science. More of the value has been learned regarding rational treatment by the use of drugs in the last fifty years perhaps, than in all the centuries that preceded; for, during the last fifty years, we have gained entirely new conceptions of the nature and course of disease.

Through chemical, physiologic, psychologic, pathologic and clinical studies we have learned much regarding pathogenesis, that is to say, regarding the chains of changes in the body that follow on injuries of various sorts. Synthetic chemistry has supplied us with a host of new substances for trial as remedies. The new sciences of pharmacology and toxicology have revealed to us the mode of action of drugs and poisons, and medical students are observing for themselves, in our pharmacologic laboratories, the physiologic effects that follow the introduction of foreign substances into the animal body, and they measure some of these effects with instruments of precision. Knowing only too well that in the diseased body drugs often act in an unexpected manner, in ways very different from those in which they act in the healthy body, clinicians have wisely seen that the pharmacology of the laboratory, though of great value for the general advance of scientific therapy, cannot take the place of accurate clinical observation. It can do much to guide therapeutic effort and to supply criteria for judging of its effects but the final and crucial test of the value of any therapy is that of actual clinical experience.

The clinic can help the laboratory, and the laboratory the clinic; but each has its independent domain that should be conscientiously worked and zealously safeguarded.

THE NEW EXPERIMENTAL SCIENCES.

Recently, laudable attempts partially to bridge the gap between the pharmacologic laboratory and the clinic, in the interests of pharmacotherapy, have been observable in the work of the new sciences of experimental pathology and experimental therapy, especially experimental substitution therapy, and experimental antiparasitic therapy (immunotherapy, serotherapy and chemotherapy).

Workers in these new sciences reproduce certain sharply circumscribed syndromes in experimental animals and then study various forms of treatment experimentally, analyzing the effects of the measures tried. With the advent of the experimental pathology and experimental therapy, we can hope for the rapid development of a systematic science of therapy; and though the transfer of results of experiments in treatment of sick animals to treatment of the sick human being will always mean a leap from the known to the unknown, still this transit will from now on be made with ever-lessened danger. New drugs and chemicals will in the future be thoroughly and reliably tested, not only in pharmacologic laboratories on healthy animals, but, as far as possible, also in laboratories of experimental pathology and therapy on animals in which special diseases have been induced, before we shall feel justified in making trial of them in the treatment of sick human beings.

CLASSES OF PHARMACOTHERAPY.

Now that physicians generally understand that, in all diseases of pathologic processes, they have to deal with modifications of normal (or physiologic) processes that depend on definite disease causes, modifications, moreover, that are beyond the self-regulating capacity of the organism to keep within those limits of functional activity that we observe in "health," the internist can classify his pharmacotherapeutic efforts according to the kind of effect he desires to produce. Thus (1) he may try with a drug to remove the cause of the disease or to render it harmless (etiologic pharmacotherapy); or (2) he may use a drug that will help directly to restore a pathologically disturbed function to normal (functional pharmacotherapy); or (3) he may administer substances that will aid the organism in its modes of reaction against the disease-cause (regulatory pharmacotherapy); or finally (4) he may employ drugs merely to relieve single troublesome symptoms (symptomatic pharmacotherapy). Internists who, after thorough and complete diagnostic studies, carefully consider these several indications (etiologic, functional, regulatory and symptomatic) should achieve in their pharmacotherapy the highest possible success.

ETIOLOGIC PHARMACOTHERAPY.

Pharmacotherapy is seen at its best when, through the use of a drug, the cause of a disease is removed or rendered harmless (etiologic pharmacotherapy) before the patient has sustained irreparable injuries. The organism can then right itself, so that its activities can resume their normal or physiologic course. As our knowledge of disease-causes steadily undergoes increase, even more maladies will be made accessible to etiologic therapy. Physicians of all times have considered the causal indication when they removed harmful substances from the stomach by

emetics, such as mustard or ipecac, or from the intestine by purgatives, such as castor oil, calomel or magnesium sulphate. The greatest successes in causal therapy have, however, been achieved by using drugs that kill living animal or vegetable parasites within the body, or that drive them from the body into the world outside. The use of oleoresin of male fern against tapeworm, of santonin against roundworms, and of oil of chenopodium against hookworms, are paradigms of antiparasitic pharmacotherapy. The parasites of malaria were killed by the quinine contained in cinchona long before we knew that the malarial fevers were parasitic in origin. Pathogenic amebas in the intestine can be killed off by means of emetine hydrochloride. The fungi that cause blastomycosis and sporotrichasis die when subjected to the influence of the iodides. Noteworthy triumphs have recently been scored also by etiologic chemotherapy directed against certain parasites (trypanosomes, spirochetes and spirilla) that cause African sleeping sickness, syphilis, and relapsing fever. Through prolonged experimental work, parasiticides have been discovered that have a greater affinity for and toxic effect on trypanosomes and spirilla than on the body cells and organs; in other words, poisons that are more parisitotropic than organotropic can now be used to kill certain invading microörganisms without too much injury to the invaded host. Arsphenamine and neo-arsphenamine help us greatly in the fight against syphilis, and are undoubtedly valuable additions to our pharmacopoeia. With further studies of the parasitotropic qualities of various arsenical and antimonial compounds, we can reasonably hope for satisfactory means of control of a series of tropical diseases that up to recent times have defied the efforts of therapists.

In the antiparasitic treatment of diseases of bacterial origin, experimental chemotherapy has thus far been baffled. This does not mean, however, a permanent defeat. There is much to encourage investigators to continue their search for internal disinfectants that may be safely used. The body fluids and the body cells contain and manufacture substances that can kill bacteria. The chemical constitution of these bactericidal substances, we can feel sure, will ultimately be discovered; the substances will, later, be made synthetically and utilized in therapy. Moreover, toxic bacteriotropic substances that are foreign to the organism and innocuous for it will also doubtless be found and used. We already know that ethylhydrocuprein will kill pneumococci, though its deleterious effect on the optic nerve makes it unsafe as yet as a therapeutic agent. But who knows how soon some enterprising experimental chemotherapist may find a related pneumococcicidal substance that is less harmful to the body, just as the discovery of the relatively innocuous spirillocidal arsphenamine succeeded that of the blindness-producing atoxyl?

FUNCTIONAL PHARMACOTHERAPY.

Though less ideal and important than etiologic therapy, much good can be accomplished by the internist who, making use of a so-called functional pharmacotherapy, tries to restore to normal some function that, through disease, has become disturbed or abolished.

This can easily be made clear by citing a few examples. Thus, a patient with valvular disease of the heart may get on well for years, thanks to the reserve force of his cardiac muscle. But sooner or later, the function of the heart muscle begins to fail, and breathlessness, tachycardia, arrhythmia, passive congestion and

edema appear. In digitalis, the pharmacotherapist possesses a remedy that, properly used, will often slow the heart rate and increase the contractility and tonicity of the muscular walls of the heart so that the circulatory insufficiency will disappear. Or, a patient in whom atrial (auricular) fibrillation exists may have the normal initiation and conduction of atrial stimuli restored by means of a few doses of quinidine. Or, again, a patient whose arteries are becoming sclerotic may have spasms of the coronary vessels and the severe pain of angina pectoris that can be relieved by dissolving a tablet of glyceryl trinitrate under the tongue, which, by dilating the pathologically contracted coronary arteries, removes directly a responsible functional disturbance. Similarly, we can relax the bronchospasm of a typical attack of bronchial asthma by the injection of a few minims of a solution of epinephrin (1 : 1,000), and we can spur the atonic wall of the intestine to contract in a postoperative case by means of a hypodermic injection of solution of hypophysis (pituitary extract). In all these instances we make use of a functional pharmacotherapy.

Another example may be chosen from the field of metabolism. Thus, in gout, uric acid is not adequately excreted by the kidneys, being retained in the blood or deposited in the tissues about the joints. The function of uric acid excretion by the kidneys can be temporarily increased by the administration of cinchophen or neocinchophen, substances that also exert an exceptionally efficient analgesic effect in acute attacks of gout.

What we know as organotherapy may also be regarded as one kind of functional pharmacotherapy. If dried thyroids, for example, be given to a patient with myxedema (due to absence or defective function of the thyroid gland), the substance administered is capable of substituting for the function in abeyance and, in turn, of restoring to normal function those distant organs whose activities have undergone change through lack of the thyroid hormone.

REGULATORY PHARMACOTHERAPY.

Turning next to regulatory pharmacotherapy, that form of treatment in which we administer remedies with the object of "aiding the body to react against the disease-process or the disease-cause," a good example will be seen in the pharmacotherapy of acute nephritis. In a severe glomerulonephritis, water, salt and urea are no longer adequately excreted by the kidneys, being retained in the body. The body attempts to excrete these vicariously, through the digestive tract and the skin. The physician may aid the natural reaction of the organism by using (1) a drastic purgative, like compound powder of jalap, which produces copious watery evacuations, and (2) a powerful diaphoretic, like pilocarpine nitrate, which causes free sweating. Such purgation and diaphoresis support the activities of the normal regulatory mechanisms of the body and are therefore classed as examples of "regulatory" pharmacotherapy.

In the treatment of diphtheria with antitoxin, we also employ a regulatory therapy, for, on injection of the antitoxic serum, we support the normal reaction of the organism in its effort to produce chemical substances that neutralize the toxins of the diphtheria bacilli.

The treatment of a posthemorrhagic by anemia preparations of iron may serve as a third example of regulatory pharmacotherapy. The body reacts after severe hemorrhage by increased activity of the red bone marrow, regenerating red blood

corpuscles rapidly. More iron may be required for this accelerated erythropoiesis than is available in ordinary diet. The reactive regenerative process can be strongly favored by administering ferrous carbonate, say, in the form of Blaud's pills.

SYMPTOMATIC PHARMACOTHERAPY.

Symptomatic pharmacotherapy, which neither intervenes the disease process as such nor attacks its cause, is, however, a form of therapy that is by no means to be despised. Though it is directed only toward single symptoms that injure or torment him, this therapy is highly important for the patient, and, when successful, is the ground for much gratitude on his part. There is scarcely a symptom that is complained of by patients that physicians have not attempted to influence by pharmacotherapeutic methods. And the relief that can be afforded in many instances thoroughly justifies the attention that is given to the indicatio symptomatica.

It is above all in the relief of pain and of the various forms of mental and bodily discomfort that this is true. We would not willingly neglect the administration of morphine in renal colic; of acetylsalicylic acid in the arthralgias; of wine or beer to paralyze certain pathologic inhibitions and to bring needed relaxation; of heroine and codeine in the racking cough of pneumonia; or of the various analgesics that are effective in migraine, in neuralgias, and in the lancinating pains of tabes. Though we may deplore the abuses of alcohol as a beverage, of purgatives in habitual constipation, of sedatives in the neuroses, of the hypnotics in insomnia, we all will admit that after causal, functional and regulatory indications have been fully met as our science permits of, there will be occasions when the merely symptomatic indication dare not be ignored.

CONCLUSION.

It will be clear from what I have said that the internist looks on the use of drugs in therapy more hopefully now, perhaps, than ever before. Available drugs are of real value in curing, in ameliorating, and in preventing disease, and new drugs that are useful are steadily being discovered.

Adequately to make use of the pharmacotherapeutic means at his disposal for meeting etiologic, functional, regulatory and symptomatic indications, the internist must, it is true, have mastery over a large body of facts. He must be well trained in normal and pathologic physiology and should have become acquainted with the known facts of etiology and pathogenesis. He should have learned in the pharmacologic laboratory the effects of the more important drugs on the normal animal body; and he should have had the opportunity in the hospital wards, and in the laboratory of experimental pathology and therapy, to observe the changes that can be produced by drugs in disease. Very few have as yet had opportunity for the latter, but the medical schools should provide for it in the future.

Our teaching hospitals at present are, perhaps, more diagnostic institutes than institutes of therapy. It might, possibly, be wise to divide our medical clinics in two parts, patients entering one division, for the general diagnostic study and emergency measures, to be transferred afterward to the other division for full treatment, the effects of which could be carefully observed by the students.

The internist with such a training in the medical school as I have outlined will be prepared to institute a rational therapy wherever this is possible. He will know how to make a judicious use of empiric therapy when a rational foundation

is lacking. As a matter of fact, pathology and therapy have of late years made such rapid strides that the physician can, in the majority of instances, give reason for the therapeutic faith that is in him. For this we have to thank both the research activity of the scientific laboratories and the keen and critical observations of our better clinics.

The introduction of new therapeutic methods and new drugs can scarcely be expected from now on to be arrived at by accident, or through pure empiricism. Every new therapeutic agent should, as Magnus[1] has emphasized, be thoroughly tested in the laboratories as regards its activity and its dangers, and, later, in the organized clinics, before it is introduced into general medical practice. Best results in clinical experience must ever remain the final and crucial test of every form of therapy.

CONTRIBUTIONS TO THE KNOWLEDGE OF FOREST PRODUCTS.

INTRODUCTION.

BY ROLAND E. KREMERS.

It seems generally true that a people's interest in forests and the care which they bestow on their available timber is in inverse proportion to their national resources. As the history of our country repeatedly shows, our former abundant forests have been largely wasted until now we face an acute shortage at no very distant date.[2] But even while the wanton destruction of our forests was at its worst, there were far-sighted men who warned the nation of inevitable consequences, and who appealed to European conditions and experiences for their justification. Through such men the now well-known conservation movement was established. This resulted not only in the awakening of general interest, but also in the strengthening of remedial tendencies, notably the development of National Forests and of the present Forest Service, better forest management, and more active reforestation. But whatever the means employed, the chief end of the conservation movement as applied to forestry was timber. In certain sections there has been compromise with other interests and resources, especially in the West where mining and grazing have striven with forestry for priority.

The need for forest conservation is quite generally admitted at present, but there is not the same agreement as to how it shall be practiced or as to its urgency. Yet it seems not at all unlikely that in no very distant future there will be important problems other than timber supply connected with forest areas. These regions will have to do their share in giving employment to labor and in the distribution of population; more and more they will become important as recreation areas and as health resorts. In fact, it is stated that sylviculture in the broadest sense is the first and highest development of land utilization, closing the progression of hunting, lumbering, grazing, tillage especially for grains, and tree crops as civilization develops.[3]

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[1] R. Magnus, Allgemeine Pharmakotherapie, in Krause and Garrè: Lehrbuch der Therapie der inner heiten, Jena, 1, 71–143, 1911.

[2] For a comprehensive statement of the politico-economic phases see "The United States Forestry Policy," by John Ise, Yale Univ. Press, New Haven, 1920.

[3] J. Russell Smith, "Industrial and Commercial Geography" (Holt & Co., New York, 1913), p. 656.

The fact that present American forest practice looks to the timber crop as almost the sole source of revenue has its disadvantages in spite of being a safe investment. Particularly when the project has to begin with reforestation, it is a long-time investment and that is not overly attractive to capital in a country that is scarcely out of the exploitation stage. Hence it seems desirable to find means of deriving some sort of annual return from forest areas in order to reduce the overhead, even if it should not be possible to pay the interest on the investment.

In order to accomplish this end, other products than mature timber must be found. Up to the present, the so-called forest industries, the naval-stores industry and the wood distillation industry have almost competed with lumbering in wanton destructiveness. The more recent paper pulp industry is said to be more conservative because the installation is much less mobile. But all of them use more or less mature timber. This problem of studying and of developing non-timber forest products has seemed to the author and his students a most interesting source of materials for studies in organic and plant chemistry. The forest as a whole will be studied for whatever chemical products it may yield. The investigations are being carried on in the belief that any and all contributions to scientific fact will ultimately reap their practical benefit when their interrelations have been sufficiently understood. But it is just these interrelations which will be most carefully considered with a view to formulating a sequence of products for each month of the year. And when the desired plants have been sufficiently studied so that they can be grown with as much assurance as any other crop then we shall have a new forest management which will rank as an agricultural-chemical industry.

The easiest approach seems to be through the drug plants about many of which something is already known. It is because of these intimate relations to pharmacognosy and pharmaceutical chemistry that the series of papers, "Contributions to the Knowledge of Forest Products," growing out of the studies in the Vanderbilt Laboratory for Organic Chemistry, will be published for the present in this JOURNAL.

NASHVILLE, TENN.
FEBRUARY 27, 1922.

CONTRIBUTIONS TO THE KNOWLEDGE OF FOREST PRODUCTS.

I. THE PREPARATION OF *p*-AMIDO-THYMOL FROM *d*-LIMONENE.*

BY A. C. GRAYBEAL AND R. E. KREMERS.

Limonene is an important constituent of many volatile oils. Although isomeric with pinene and very frequently associated with it, limonene does not have the same importance in the oils of the Coniferae that pinene has. In fact it is, broadly speaking, true that where one predominates the other is recessive, and that pinene characterizes the oil from the oleoresin whereas limonene is more characteristically found in the leaf and twig oils. As the latter are valued for their content of borneol or terpineol or esters of these alcohols, it seemed of interest to consider possible methods for the chemical utilization of the less valuable limonene.

The reactions chosen for study had all been previously recorded separately in the literature.

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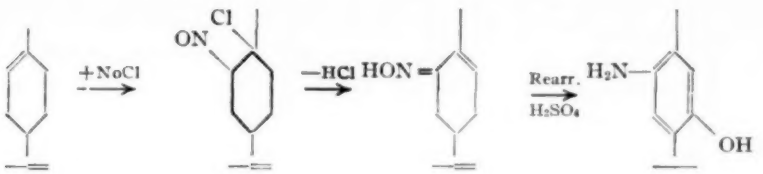
* Abstracted from a thesis presented by A. C. G. to the Graduate School of Vanderbilt University in partial fulfillment of the requirements for the degree of M.S., June 1921.



(1) *d*-Limonene. (2) *d*-Limonene-nitrosochloride. (3) *l*-Carvoxime. (4) *p*-Amidothymol.

Wallach[1] had improved the method for the preparation of limonene-nitrosochloride (2) originally obtained by Tilden.[2] Goldschmidt and Zuerrer[3] proved the identity of the carvoxime (3) obtained from carvone with that from limonene-nitrosochloride. Later Wallach[4] used carvoxime from carvone and hydroxylamine to prepare *p*-amido-thymol (4). Thus it happened that this compound had never been prepared with limonene as the starting point. That this had not been done is probably due largely to the difficulty often encountered in obtaining a satisfactory yield of the nitrosochloride, which fact may be partly explained by the existence of Deussen's "New Carvoxime."[5] This investigation was undertaken in order to help clear up this stumbling block and to study more closely certain reactions of *p*-amido-thymol.

PURIFICATION OF LIMONENE.

As a source of *d*-limonene both washed oil of lemon and washed oil of orange were used. The terpene was purified by the usual method of careful fractionation *in vacuo* and final distillation over sodium. The physical constants of the limonene thus obtained were:

ex. lemon oil,
B. $p._{760} = 173-74°$ C.; B. $p._{21} = 74-76°$; $d_{23} = 0.8410$; $n_{23} = 1.7350$; $a_{23} = +86.126°$.
ex. orange oil,
B. $p._{760} = 173-74°$ C.; B. $p._{14} = 68-70°$; $d_{26} = 0.8127$; $n_{26} = 1.4693$; $a_{26} = +114.66°$.

PREPARATION OF LIMONENE-NITROSOCHLORIDE.

Limonene-nitrosochloride was prepared from the above samples of terpene. The reaction was first carried out according to Wallach's directions.[6] To a solution of 5 cc of limonene and 11 cc of ethyl nitrite in 10 cc of glacial acetic acid previously chilled in a freezing mixture, a solution of 5 cc concentrated hydrochloric acid in 5 cc of glacial acetic acid was added drop by drop. When about half the acid had been added the white nitrosochloride began to precipitate out. At the end of the reaction precipitation was completed by the addition of 5 cc of 95 percent alcohol. The nitrosochloride was filtered by suction and washed with alcohol until perfectly white and therefore free from green mother liquor. From three such reactions the average yield was 1.025 Gm.

These conditions were then modified by replacing the acetic acid with alcohol. For two reactions in which alcohol was the only solvent an average yield of 1.48 Gm. was obtained.

Finally the following proportions were used. To a solution of 5 cc of limonene and 11 cc of ethyl nitrite in 10 cc of glacial acetic acid and 10 cc of 95 percent alcohol, 5 cc of concentrated hydrochloric acid were added. By this procedure an average yield of 3.15 Gm. was obtained. When tried on a larger scale, 33.8

Gm. of limonene-nitrosochloride were obtained from 50 cc of limonene, and 72 Gm. from 100 cc of limonene. As is evident, these conditions are favorable for quantity production in the laboratory. To be successful, however, it is necessary to observe the following precautions: The ethyl nitrite should be freshly prepared: mechanical stirring insures proper refrigeration and mixing; and the product must be thoroughly washed with cold 95 percent alcohol until it is glistening white and free from all traces of mother liquor. It is especially necessary to observe this last condition in order to prevent subsequent decomposition if the product is not used immediately.

PREPARATION OF CARVOXIME.

Of the varying conditions employed for the conversion of nitrosochloride into carvoxime, two of the slightly more favorable attempts are herewith described. Five grams of nitrosochloride and 1 gram of potassium hydroxide dissolved in alcohol were mixed in an acetylation flask and cautiously heated until the rather violent reaction was complete. The reaction product was isolated by pouring the alcoholic solution into water and extracting with ether. After evaporation of the solvent a non-crystallizable gum was obtained. The products of several reactions were mixed and distilled at 24 mm. pressure until decomposition set in. The oily distillate now crystallized on standing and the crystals were obtained in a state of purity by recrystallization from 40 percent alcohol.

M. p. found, 73° C.; recorded for *l*-carvoxime, 73° C.

In working with larger quantities, the following procedure was tried: 72 Gm. of nitrosochloride were placed in a flask provided with an adapter that carried both a reflux condenser and a dropping funnel. A portion of alcoholic potassium hydroxide was added at once and the mixture heated on the water-bath. The remainder was added as the reaction progressed as indicated by phenolphthalein. After completion of the reaction, the product was precipitated by water, extracted with ether, and steam-distilled. The residual oil then crystallized almost immediately after it had been separated from the hot water. The carvoxime was recrystallized as before; yield 9.2 Gm.; percent yield 15.7 percent; m. p. 73.5° C.

p-AMIDO-THYMOL.

The carvoxime thus obtained was converted into *p*-amido-thymol by Wallach's method,[4] the yields being satisfactory.

M. p. found, 173° C.; recorded, 173°.

Wallach reports that *p*-amido-thymol can be diazotized in sulphuric acid solution and coupled with phenols. While the reaction undoubtedly takes place, it does not appear to be altogether free from side reactions which are difficult to control. In spite of repeated attempts, no two reactions yielded products of the same melting point. Hence it seems desirable to leave this problem for a separate report.

SUMMARY.

p-Amido-thymol has been prepared direct from *d*-limonene.

The conditions for the preparation of limonene-nitrosochloride and for its conversion into carvoxime have been more clearly defined.

It has been found that under the usual conditions the diazotization and coupling of *p*-amido-thymol do not proceed smoothly.

BIBLIOGRAPHY.

1. Wallach, *Ann.*, 245, 255, 1888.
2. Tilden, *Jour. Chem. Soc.*, 31, 560, 1877.
3. Goldschmidt and Zurrer, *Ber.*, 18, 2220, 1885.
4. Wallach, *Ann.*, 279, 369, 1894.
5. Deusen, *Ibid.*, 369, 60, 1909.
6. Wallach, *Ibid.*, 252, 109, 1889.

THE INFLUENCE OF METHODS OF DISTILLATION ON THE COMMERCIAL VALUE OF OIL OF AMERICAN WORMSEED.

BY G. A. RUSSELL.

INTRODUCTION.

Within the past few years considerable difficulty has been experienced by the trade in securing wormseed oil that conforms to the U. S. P. specifications. Whereas small lots of oil have been secured in quantities to meet the spot demand to a greater or less degree, the supply left in the hands of the producers has been of relatively large magnitude. This oil was probably, without exception, of such character that it did not test up to the U. S. P. requirements, and this condition of affairs appears to have grown more and more acute until at the present time it is stated that more than 50 percent of the crop is still in the hands of the producers.

Such a condition would naturally point to three possible explanations: (*a*) adulteration, (*b*) a change in the character of the oil brought about by long and intensive cultivation and selection of the plants, or (*c*) a change in the method of distillation at the distilling plants.

It is believed that no instances of adulteration have been disclosed by the offices charged with the enforcement of the Food and Drugs Act, and thus the first supposition is at once eliminated. While it is perhaps true that long and intensive cultivation, accompanied by seed selection, or type selection, would influence the character of the oil to some extent, to prove this would require study over a period of years, and there is no evidence that such a study has been made. There remains, then, the third supposition that the method of distillation at the distilling plants might produce changes in the oil which would cause it to be rejected as not up to specifications.

In 1908 Schimmel and Company[1] pointed out that the distillation of Chenopodium herb must be accomplished by the exercise of certain precautions in order that an oil might be secured which would conform to the standards of that time. Later Nelson[2] laid emphasis on the method of distillation, stating, ".....the valuable and chief ingredient, is unstable, and is decomposed gradually on boiling with water. Consequently, the distillation must be carried on rapidly with steam at a good pressure, the condenser kept warm and the warm distillation water separating from the oil in the receiver, discarded."

The second precaution mentioned by Nelson has no effect on the composition of the oil but does tend to effect a better separation of the oil in the receiver. The densities of warm water and warm wormseed oil vary by a greater degree than do

[1] Schimmel and Company, "Semi-Annual Report," April 1908, p. 109.

[2] E. K. Nelson, "The Composition of Oil of Chenopodium from Various Sources," *J. Am. Chem. Soc.*, 42, 1204, 1920.

those of cold water and cold oil. The third precaution is not applicable at present, for no producer of wormseed oil is returning distillate water to the retorts. However, this is a point that needs emphasis since the custom of returning distillate water is quite general in the practice of distilling volatile oils and its adoption in wormseed distillation may be a future possibility.

U. S. P. SPECIFICATIONS FOR OIL OF CHENOPODIUM.

In Edition IX of the U. S. Pharmacopoeia the oil of Chenopodium, or Oil of American Wormseed, is described as a volatile oil distilled from *Chenopodium Ambroisioides Anthelminticum* Linné (Fam. Chenopodiaceae), which is colorless, or pale yellow in color, soluble in 8 volumes of 70 percent alcohol and varying in specific gravity from 0.955 to 0.980 at 25° C. The optical rotation varies between minus 4° and minus 10° in a 100 millimeter tube at 25° C. These limits were established only after the examination of a great number of samples of oil obtained at the source of production and represent the minimum and maximum as found.

Of late years, more especially 1920 and 1921, the producers and dealers in Chenopodium oil have argued that the U. S. P. standards should be lowered. They base their argument on the fact that authentic oils secured at the stills do not have a specific gravity of even 0.955 and that they are not soluble in 8 volumes of 70% alcohol. In this respect the contention of the producers and dealers appears sound and reasonable. However, as has been pointed out by Nelson,[1] the lower the specific gravity the less ascaridole present in the oil. If, then, the oil of low specific gravity is allowed to enter the market, lower therapeutic activity may be expected. It would seem rational, therefore, to look for a reason or reasons why the oil which is produced now should vary so much from the oils produced when the standards were formulated.

In view of the results obtained by Schimmel and Nelson it might be expected that the oils of low specific gravity and solubility were not distilled by proper methods. A study of the methods of distillation now in common use has shown that on the whole the conditions under which American oil of wormseed is distilled are unfavorable to the production of a marketable oil which satisfies the U. S. P. requirements.

LABORATORY INVESTIGATIONS.

In 1921 some first-hand information was obtained on the behavior of Chenopodium oil under various conditions of distillation. A plat of the so-called "Tall variety" of Chenopodium was grown on the heavy clay soil at the Government Experimental Farm, Arlington, Va. Plants were not set out, as is done in Maryland, but seed was sown direct in the row. An excellent stand of uniform growth was secured. During the growing season the plants received the necessary attention as to cultivation and hoeing. The herb was harvested on September 12 and allowed to "cure" in the field until September 16, when it was distilled. During the curing period no rain fell and the days were unusually warm for that season of the year. The cured herb was collected on canvas sheets, to prevent loss of seed through shattering, and divided into two equal portions. These portions were then distilled and the oils analyzed.

[1] *Loc. cit.*

OIL A. (RAPID DISTILLATION WITH CONDENSER WARM.)

Weight of herb distilled	150 kilograms
Weight of oil secured	275 grams
Yield of oil	0.183%
Steam pressure at inlet to retort	60 pounds
Temperature of cooling water entering condenser	18° C.
Temperature of cooling water leaving condenser	72–85° C.
Temperature of distillate	60–74° C.
Time of distillation	30 minutes

The capacity of the condenser was limited so that 3.65 pounds of steam per minute was the maximum that could be condensed and cooled to not over 74° C. The distillate water weighed approximately 110 pounds. The oil was removed from the receiver at once and allowed to cool. It was then dried with anhydrous calcium chloride and filtered.

OIL B. (SLOW DISTILLATION WITH CONDENSER COLD.)

Weight of herb distilled	150 kilograms
Weight of oil secured	185 grams
Yield of oil	0.123%
Steam pressure at inlet to retort	60 pounds
Temperature of cooling water entering condenser	18° C.
Temperature of cooling water leaving condenser	35° C.
Temperature of distillate	22° C.
Time of distillation	60 minutes

The steam flow through the herb was regulated to 1.82 pounds per minute. The distillate water weighed approximately 110 pounds. Oil B was treated in the same manner as Oil A.

The oils were then analyzed and the results obtained are given in Table I.

TABLE I.

Oil.	Color.	Odor and Taste.	Sp. Gr. at 25° C.	Angle Rotation in 100 Mm. Tube at 25° C. Minus.	Solubility in 70% Alcohol.	Ascaridole (1) Percent.
A	Light yellow	Characteristic	0.9631	5°30′	8 vols.	73
B	Light yellow	Characteristic	0.9338	6°55′	Insoluble	60

[1] E. K. Nelson, "A Rapid Assay Method for the Determination of Ascaridole in Oil of Chenopodium," JOUR. A. PH. A., 10, 836, 1921.

In reviewing these results it at once becomes apparent that the method of distillation is a factor which causes great change in the oils. With rapid distillation, that is, with a good flow of steam, an oil was secured which passed all the U. S. P. requirements and contained a high percentage of ascaridole, hence its therapeutic value would without doubt be higher than the oil secured by slow distillation, in which the ascaridole content was only 60 percent and the physical constants too low to fulfil the minimum U. S. P. requirements. These results confirm the previous statements found in the literature respecting the technique of distillation of this oil.

In addition to the variation in the physical constants and ascaridole content of these oils a marked difference in the percentage of yield is also to be noted. This

difference amounts approximately to an increase of 48 percent in the yield obtained by distillation with a good flow of steam. Such a large increase is not due wholly to the loss of ascaridole, which is broken down into water-soluble products by boiling water, but to other factors which are not at present explainable. Some variation in yield is to be expected from two apparently uniform lots of herb but not to the extent found in these experiments. This variation in yield can therefore be accounted for only in part.

FIELD INVESTIGATION.

Having demonstrated by experiment that the flow of steam, or, in other words, the rate of distillation, was the main if not the only factor which caused the low-grade oil, a brief field investigation was undertaken for the purpose of studying methods of distillation and to obtain some data on the oil as it was produced at the distilling plant.

Practically all the oil of wormseed produced comes from Carroll County,

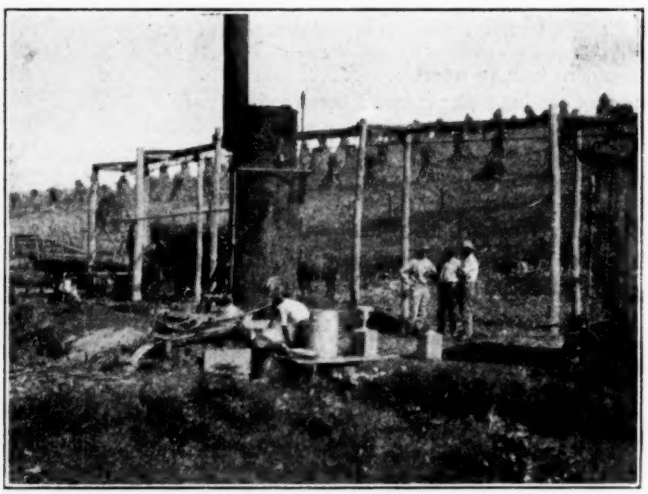


Fig. 1.—A Typical Distilling Plant for the Production of Oil of Wormseed in Carroll County, Maryland.

Maryland. From twelve to fifteen distillers operate there, the number working depending upon local conditions. The retorts are usually processing kettles such as are used in canning factories. The steam is usually generated in a stationary boiler, as shown in Figure 1, and in some instances in the boiler of a threshing engine, as shown in Figure 2. The condensers are uniformly of one type and consist of straight pipes laid in a trough of running water and connected to the retort in a suitable manner just under the cover. Each distilling outfit is set up near a small stream so that by building a dam across the stream the water can be diverted to the condenser trough and an abundant supply be assured at all times. These condensers are very efficient since no limit need be set as to the length of pipe through which the steam from the retort must pass.

From the study of the method, or technique, of distilling as practiced at one still where the oil produced in 1921 was of uniformly high grade, the figures given

in Table II were secured. At this particular distilling plant the herb was distilled in an average time of not over 12 minutes, and during this period approximately 250 pounds of steam were passed through the retort.

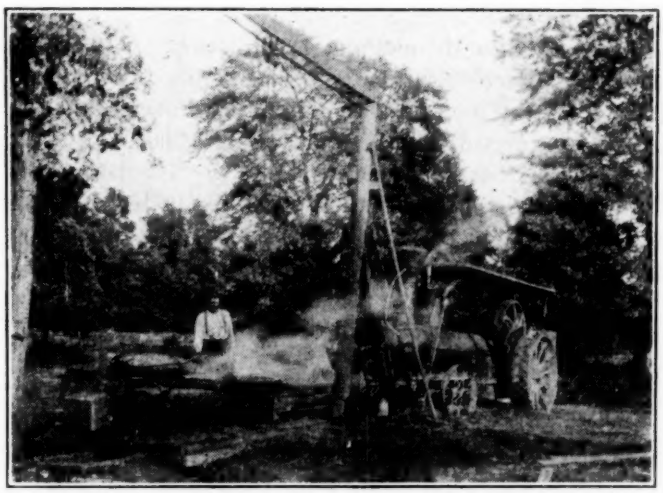


Fig. 2—A Distilling Plant for the Production of Oil of Wormseed, Using a Threshing Engine for the Steam Generator.

The figures in Table II require some explanation. In Oils 1 and 2, a slight variation was made in the steam pressure and the effect on the yield and specific gravity of the oils observed. No differences were noted. Oil 3 was obtained in two portions, the first 10 minutes' run being 64 ounces, and the second 10 minutes' run 4 ounces, the steam pressure being cut down to not over 60 pounds. It will

TABLE II.

No. of Oils.	Time of Distillation (Minutes).[1]	Steam Pressure at Retort (Pounds).	Sp. Gr. of Oils at 25° C.	Solubility of Oils in 70% Alcohol.
1	9	80	0.974	8 vols.
2	8	100	0.974	"
3	10	40 to 60	0.9735	"
	10	40 to 60	0.9710	"
4	12	100	0.974	"
5	11	100	0.968	"
6	10	100	0.968	"
7	8	100	0.962	"
	10	100	0.9615	"
8	12	100	0.968	"
9	12	100	0.974	"
10	12	100	0.960	"
11	12	100	0.956	"

[1] Time taken from appearance of distillate at discharge end of condenser.

be noted that the specific gravity of these oils was lowered, noticeably so in the 4 ounces obtained during the latter part of the run. Oils 1 to 4, inclusive, were distilled from herb grown by a farmer on $^1/_2$ acre of so-called good wormseed land.

Oils 5 and 6 were regular distillations, whereas Oil 7 was collected in fractions and obtained by slow distillation. In distilling this oil the inlet valve at the retort was cracked and 8 minutes elapsed before the steam appeared in the condenser. At the end of 8 minutes' further distilling 4 pounds of oil had been secured, and in the next 10 minutes an additional pound was distilled. The specific gravity of these oils was lowered by the method of distillation. Oils 5 to 7, inclusive, were distilled from herb grown by a farmer on $^1/_2$ acre of so-called good wormseed land, this farm being some distance from the one first mentioned. Oil 8 was distilled from herb grown in Howard County, Oil 9 from herb grown in Carroll County, and Oil 10 from herb grown in Frederick County. The last three oils were produced by the regular method of distillation as conducted at this particular distilling plant. Oil 11 was distilled from sweepings around the retorts, plus a considerable amount of emulsion which is always present in the receiving can. This emulsion accumulates and is usually redistilled whenever advisable. The oil obtained from this miscellaneous lot of material barely passed the lower limit specified by the U. S. Pharmacopoeia.

The apparatus in use at the distilling plant where the figures in Table II were obtained was similar to that in all the distilling plants producing wormseed oil, with the exception of the steam pipe from the boiler to the retort, which pipe was of considerably larger diameter. This large steam pipe permitted a large volume of steam per minute to pass through the retort—at this plant about 20 pounds. No difficulty was experienced in condensing since the condenser pipes lay in running water and could be extended indefinitely, or until the proper condensation was effected. At all the other distilling plants visited the feed steam pipe was of small diameter and quite often of considerable length before entering the retort. In addition to the lack of sufficient steam many operators admit the steam slowly and thus "cook" the herb for a considerable time before the steam begins to pass into the condenser.

The field investigation was further extended to a distilling plant where the volume of steam passed through the retort per minute was considerably less than 20 pounds. In fact, about 5 pounds of steam per minute was the usual rate of distilling. The figures given in Table III were obtained at this distilling plant.

TABLE III.

No. of Oils.	Time of Distillation (Minutes).	Steam Pressure at Retort (Pounds).	Sp. Gr. of Oils at 25° C.	Solubility of Oils in 70% Alcohol.
12	30	About 40	0.938	Turbid in 8 vols.
13	30	"	0.950	Soluble 0.946
14	30	"	0.946	"
15	30	"	0.946	"
16	$\{12^1/_2$	"	0.965	"
	$(12^1/_2$	"	0.955	"

The steam pressure at the retort could not be accurately determined owing to the fluctuations in pressure at the boiler. However, the pressure, as stated in Table III, may be taken as the average for the period of distillation. Oils 12 to 15, inclusive, were of the general run secured at this distilling plant. Oil 16 was distilled from a lot of well-cured herb and was distilled without the previous warming or "cooking" that was the usual method of procedure. This oil was collected

in two fractions, the first weighing 80 ounces and distilling off in $12^1/_2$ minutes, the second weighing 6 ounces and distilling off in the same length of time. After examining the results given in Table III it at once becomes apparent that long distillation, in which a great portion of time is taken up by the preliminary warming or "cooking," affects the oil secured to such an extent that it does not meet the official requirements.

In view of the results given above it appears that the agitation to have the requirements for oil of wormseed changed so as to admit oils of lower specific gravity than are admitted in Edition IX of the U. S. Pharmacopoeia is not warranted. Lowering the standards would admit oils of low ascaridole content and consequently of lower therapeutic value. Moreover, the changing of the U. S. P. requirements is unnecessary since by following a few simple directions each producer can distill oil of high grade and one which will answer all the present required tests.

SUGGESTED MODIFICATIONS IN DISTILLING PLANTS.

It is believed that if the distilling plants in Carroll County, Maryland, will change the steam lines so that a larger volume of steam per minute can be passed through the retorts a high-grade oil will result. Most of the distilling plants possess sufficient boiler capacity and the only change required would be in the supply steam lines. These should not be less than two inches in diameter from boiler to retort and with a one-inch pipe distributing the steam through a "spider" in the retort. The two-inch line should be as short as possible, that is, the retorts should be placed as near the boiler as is convenient and the steam line should be insulated. If the two-inch pipe is not too long and has the minimum number of bends necessary to lead it from the boiler to the retort, a steam pressure of 80 pounds at the boiler gauge will be sufficient to provide a good pressure at the retort.

At some distilling plants a preliminary "warming up" is given each charge. This is done by admitting the steam slowly and allowing it to work its way gradually up through the packed herb. This practice should be discontinued since it tends only to break down the ascaridole in the oil into water-soluble constituents and thus affects the quality of the finished product. The placing of water in the bottom of the retort should likewise be avoided and the retorts should be drained after each charge is distilled, if this is found necessary. Steam should be admitted promptly and at the full capacity of the one-inch inlet pipe. If a pipe of sufficient size leads from the retort to the condenser and the pipes of the latter are kept free from obstruction no pressure will develop in the retort.

The condensers now in use are probably of sufficient capacity to condense the steam which will be passed into them if the suggestion as to steam supply is adopted. If not, the capacity can readily be enlarged by lengthening the condenser tubes. The condensate, a mixture of water and oil, should flow out at a relatively high temperature. To cool the distillate too much causes a loss of oil which is carried away by the overflow, the oil and water being relatively nearer the same density when cold than when warm.

The receiver in use at present could readily be modified into a "florentine flask"-like type and the excessive "churning" of the oil and hot water avoided. By placing two receivers in series the second would act as a trap to collect any oil carried over mechanically from the first.

The distiller should provide himself with a specific gravity apparatus calibrated at 25° C. The hydrometers now in general use throughout the distillation district are calibrated at 60° F. (15.5° C.), whereas they should be calibrated at 77° F. (25° C.). A distiller who tests his patron's oil at 60° F. and finds it just within the lower limit for specific gravity is much disgruntled when he discovers that the dealer or broker refuses to accept the oil, because it is not up to "gravity." As a matter of insurance to themselves brokers and dealers in volatile oils should see to it that the producer is equipped with proper instruments for testing his oils as they are distilled.

SUMMARY.

Producers of Oil of Wormseed, U. S. P., favor a change in the requirements of this oil, specifically a lowering of the minimum limit for specific gravity. Such a change is believed to be unwarranted, in view of the results herewith presented.

Oil of Wormseed can be produced that will meet all the U. S. P. requirements by distilling the herb with a large volume of steam during a relatively short period of time. It is recommended that with the apparatus now in use not less than 20 pounds of steam per minute be passed through the retort and that the distillation time does not exceed 15 minutes.

"Warming up" of the charge to be distilled is not necessary, in fact it is bad practice, and water should not be added to the retorts. These should be drained of condensed steam whenever necessary.

Changes in the present distilling outfits can be effected at small cost and without complicating the routine of distillation whatever.

BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE.

DETECTION OF DIETHYLPHTHALATE IN WHISKY.

BY A. B. LYONS.

A special denatured alcohol (Formula 39 B) for use in perfumery is now obtainable at a moderate price, offering a new temptation to the bootlegging fraternity. A sample of whisky was recently brought to me for examination, said to have caused "sickness" in those who had sampled it. I examined it with reference to the presence of the usual denaturants. When tested for acetone in the usual manner with iodine and sodium hydroxide, distinct milkiness appeared in the solution tested within a minute at room temperature, increasing in density on shaking up to a certain point. The odor of iodoform was distinctly recognizable. After an hour or two the solution had become quite transparent, with a scanty, pale yellow deposit, which showed under the microscope hexagonal plates. The reaction was obtained both in the sample and in a distillate therefrom. It was also obtained from a dilute hydroalcoholic solution of diethylphthalate, and in denatured alcohol, Formula 39 B. From the scantiness of the precipitate in the latter cases, it may be inferred that the reaction is due to an impurity present only in small proportion and so has no practical importance.

A distillate from the sample was diluted with water and tested for methyl alcohol by the modified Hehner test, with unsatisfactory results. A color was produced, having a purplish shade, but the indications of the test were inconclusive, and further experiment showed that I was on the wrong track.

In distilling the diluted sample, it had been observed that the distillate, the first portion of which was quite clear, after a time became clouded, a behavior suggesting the presence of something soluble in alcohol but not in water. Could this be the new denaturant, diethylphthalate? The physical properties of that ester have become somewhat familiarly known to perfumers, who find it useful as a fixative for the more volatile of the essential oils, but chemical textbooks generally give no description of this interesting compound. It is easy, however, to procure the ester and so ascertain its physical properties.

It is a colorless, odorless liquid, oily in appearance and having a high specific gravity (about 1.117 apparent at 25° C.). It is readily miscible with alcohol, ether, chloroform and other solvents of like character. One is surprised to find that it has a most pronounced taste, with a characteristic pungency, producing a transient numbness of the tongue. Its most remarkable peculiarity is its very high boiling point—above 290° C. At ordinary temperatures it is almost wholly non-volatile. If, however, a solution in alcohol is distilled a notable quantity of the ester passes over with the alcohol vapor. The loss is almost negligible if an alcoholic solution is evaporated in a current of warm air.

Denatured alcohol, Formula 39 B, contains two percent of diethylphthalate, this being dissolved in U. S. P. alcohol. If 5 cc of it are evaporated in a current of warm air and the residual oily fluid dried 30 minutes at 60° C. the ester which remains should weigh close to 0.1117 Gm. One sample which I examined left a residue weighing 0.134 Gm. and the saponification test showed a corresponding excess of the ester. The quickest way to ascertain approximately whether the sample is of correct strength is to add to 5 cc of it, gradually, exactly 10 cc of distilled water; the temperature of the mixture is several degrees higher than that of the fluids before admixture. When cooled gradually, with shaking, the mixture becomes suddenly clouded. The temperature should be found to have fallen just below 21° C. If the proportion of ester is greater than 2 percent, the critical temperature will be higher that this. In case of a sample containing 2.5 percent of the ester, cloudiness appeared at 27.2° C.

It is possible, therefore, to determine with reasonable precision the quantity of ester present, provided the alcohol is of official strength. This may be ascertained by adding to 15 or 20 cc of the sample 0.250 Gm. of anhydrous potassium carbonate in powder. This will agglomerate or even become liquefied if the alcohol is not of full strength. If the alcohol is of official strength, and the critical temperature is found to be above 21° C., add to the mixture 1 cc of a mixture of alcohol 1 volume and distilled water 2 volumes, and determine the critical point. If this is still too high, add more of the diluted alcohol, and continue to do this until the critical temperature is brought to 21° C. If 4 cc of the dilute alcohol have been added, the total volume of the mixture will be 15 + 4 cc, and the percent of ester (x) will be found by the "rule of three" thus: $15 : 15 + 4 :: 2 : x$, whence $15x = 38$ and $x = 38 \div 15$ or 2.53.

If the denatured alcohol contains less than 2 percent of the ester we may double its strength by cautious evaporation of 20 cc to a volume of 10 cc, proceeding then just as directed above, but the simpler plan in such case will be to determine the ester by evaporating off the solvent entirely and weighing the residue.

The principle, however, is one that admits of application in many similar cases, *e. g.*, in the testing of spirit of camphor. I am not aware that it has been heretofore employed in quantitative determinations. It may be designated as the method by critical temperature. Results are surprisingly exact and reached in a very few minutes. In the case of spirit of camphor we have heretofore been content with adding to 5 cc of the spirit, distilled water, drop by drop, until a permanent precipitate was produced. The directions given have been to conduct the test at a certain given temperature, but the attention was not called to the fact that mixing the spirit with water caused a rise of temperature. To maintain a constant temperature under such conditions is manifestly difficult. The expedient of adding the water in definite measure, greater than would be required if the temperature is kept constant and then cooling the mixture to a critical temperature, is certainly a capital improvement.

Whether or not the mixture of diethylphthalate, alcohol and water found to have a critical temperature of 21° C. will undergo gradually chemical change by which its critical temperature will be altered can be determined only by experiment. I have kept a sample for some weeks in a well-corked vial of white glass as a temperature indicator in a living room and thus far it has shown no change. It would be possible to construct a thermometer of limited range by filling a series of small vials with mixtures containing varying quantities of diethylphthalate, having critical temperatures, *e. g.*, of 18°, 19°, 20°, etc.

Quantitative determination of diethylphthalate in alcoholic solution may be made by diluting the solution with water and shaking out with successive portions of petroleum ether. Ordinary ether may be used, but this will carry with it some alcohol and a little water, so that this solvent is not to be recommended.

Of course the saponification method for determination of phthalic acid is that which is least open to fallacy.

Identification of diethylphthalate is easily made by causing the phthalic acid to react with resorcin, in the manner to be presently described, with formation of fluorescein.

ROUTINE PROCEDURE FOR DETECTION OF DENATURED ALCOHOL FORMULA 39 B.

A preliminary distillation of the sample is not necessary or advisable. Proceed at once to a direct test for diethylphthalate.

To 5 cc of the sample in a separator add 5 cc of water and shake out with light petroleum ether 10, 10 and 5 cc. Evaporate the petroleum ether in a tared beaker at a temperature not above 45° C., by aid of a current of dry air. The diethylphthalate will remain in the form of oily drops, or of an oily film, which may be dried at 80° C., for 15 minutes with very slight loss of weight. If the weight of the residue is not over 25 mg., dissolve it in a few drops of alcohol and transfer the solution to a porcelain capsule. (If the weight is greater than 25 mg., dissolve it in a larger quantity of alcohol (*e. g.*, 2 cc) and use an aliquot part of the solution, representing about 25 mg., of the residue.) Add 2 drops of a 10% aqueous solution of potassium or sodium hydroxide. Evaporate by a gentle heat to dryness, add 2 or 3 drops of strong sulphuric acid (dropped from a 1-cc measuring pipette) followed by about 25 mg. of resorcin. Heat slowly over a small Bunsen flame until the brown or red color which at first appears gives place to an orange-yellow (in part at least). The temperature in this heating should reach 160° C. This is far below the temperature at which sulphuric acid fumes appear. When the capsule is cool add 25 cc of water and an excess of ammonia water, when an intense yellow-green fluorescence will appear if diethylphthalate is present.

A negative result does not prove that the sample did not contain alcohol denatured with diethylphthalate, since that ester is very easily saponified by alkalies. Proceed therefore to test for the product of such possible saponification, *i. e.*, an alkali phthalate. Evaporate to a volume of 2 or 3 cc the residue left after shaking out with petroleum ether. Transfer about 5 drops of the concentrated solution to a capsule, evaporate to dryness, add resorcin and sulphuric acid exactly as described above, phthalic acid being evidenced by the formation of the highly fluorescent fluorescein.

The probability is that the greater part of the ester originally present in the denatured spirit will be found to be in the form of an alkali phthalate. For approximate quantitative determination of the ester originally present, assuming that there has been no loss by side reactions, add to 10 cc of the sample, previously accurately neutralized if necessary, 5 cc of normal sodium hydroxide. Heat in a strong, well-stoppered bottle at 100° C. one hour. It will be well to make sure that saponification is complete, by making up the cooled solution with water to exactly 20 cc, and shaking out 10 cc of the solution (neutralized if necessary, but by no means rendered acid) with petroleum ether. No appreciable residue of diethylphthalate should be extracted. If necessary a new experiment must be made, using a stronger solution of sodium hydroxide, or increasing the time of cohobation.

When satisfied that saponification is practically complete, evaporate the solution, nearly neutralized with sulphuric acid, to a volume of about 5 cc, add excess of sulphuric acid and shake out the phthalic acid with repeated portions (15 cc) of ether. Wash the ether with water to remove traces of sulphuric acid, evaporate to a small volume, add 20 cc of distilled water (more if needed to insure complete solution of the phthalic acid), and titrate with decinormal alkali. Each cc of the volumetric solution corresponds with 8.3 mg. of phthalic acid or 11.11 mg. of diethylphthalate.

For the quantitative determination of diethylphthalate in alcoholic solution, *e. g.*, in denatured alcohol, Formula 39 B, place in a suitable flask a quantity of the alcoholic solution (which must be neutral in reaction) estimated to contain about 50 mg. of the ester. Add 1 cc of normal potassium or sodium hydroxide. Heat one hour under a reflux condenser (possibly experience will show that a longer time should be given). Add 1 cc of normal sulphuric acid and titrate the excess of acid, using phenolphthalein as indicator. Each cc of decinormal alkali required to restore neutrality corresponds with 11.11 mg. (0.009 cc) of diethylphthalate. (In the absence of other non-volatile substances an approximate determination is readily made by evaporating off the solvent, drying at a temperature not exceeding 60° C., and weighing the residue.)

LABORATORY OF
NELSON BAKER & CO.

TENTATIVE PLAN FOR THE REORGANIZATION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

EXPLANATORY STATEMENT.

To those who have kept in touch with the affairs of the American Pharmaceutical Association during the past two decades, it is apparent that there has developed among its members a divergence of opinion along two main lines with respect to the limitations to be imposed on membership and the nature and scope of the Association's activities. One group has taken the stand that the Association can secure the greatest benefits for pharmacy as a whole by confining its activities principally to furthering the interests of professional or scientific pharmacy. Those who hold this view are satisfied with the limitations on membership which the restricted nature of these activities would automatically impose. The other group has given expression to the belief that the Association must broaden its activities and enlarge its membership if it is to develop to the best advantage its power for doing good. Those inclined to this belief maintain that the activities of the Association should be extended in scope to cover all fields of pharmaceutical endeavor, and that the benefits to be derived from membership in the Association should be made so general in nature as to attract workers from all branches of pharmacy and thereby develop an organization truly representative of American pharmacy.

In a measure, the views held by the latter group are shared by the majority of the members of the Association. This is evidenced by the action taken August 19, 1912, in creating the House of Delegates. This body, as constituted at present, is composed of delegates from the various state associations, and was brought into being for the purpose of giving these organizations an opportunity to participate in the formulation of the Association's policies and the management of its affairs, and thereby stimulate a more general interest among pharmacists in the work of the Association.

It was hoped by many of those who supported the measure, that the action taken in creating the House would be the initial step in a progressive movement to expand the Association to a point where it would ultimately represent effectively all branches of pharmacy in this country. These expectations have been realized in part, but not to the extent which the favorable reception of the initial step would appear to warrant. A very marked interest has been shown by the state associations in the House of Delegates; its membership has grown and its powers have been extended, but the effect on the Association as a whole has not been entirely what was hoped for. The process of evolution has been too slow to be satisfying and a considerable sentiment has developed among quite a number of the members of the Association for a complete change in the present organization. This feeling has been heightened by the appeals which are being continually made through the various drug journals for the creation of a national organization which will be representative of all branches of pharmacy, in fact as well as in name.

The Council of the Association has not been unmindful of this steadily growing sentiment among its members and took definite action thereon at the third meeting held in New Orleans, September 7, 1921. At this meeting the executive committee was instructed to make a thorough study of the present organization of the Association and to present to the Council at its next annual meeting a comprehensive plan for reorganization.

Pursuant to the foregoing instructions, the secretary of the executive committee on direction by the chairman, sent, on October 31, 1921, a request to all members of the committee to express their views upon the general subject and to make such recommendations as appeared to them to be appropriate. In answer

to this request, several plans and a number of suggestions for a more or less complete reorganization of the Association were submitted. The nature and magnitude of the changes proposed in these plans made it impracticable to discuss them satisfactorily by correspondence, especially if the task was to be completed in the allotted time. It was, therefore, decided to expedite matters by issuing a call for a meeting of the committee. This was done and the meeting was held at the New Willard Hotel, Washington, D. C., February 25, 1922, all members being in attendance, with the exception of Prof. James H. Beal, who found it impossible to be present.

At this meeting, the proposition of reorganizing the Association and the probable effects thereof were discussed from every angle, the result being that a tentative plan for the complete reorganization of the Association was drafted and unanimously agreed upon. This plan, while only tentative, is submitted herewith for the purpose of eliciting comment and criticism, which it is hoped will be of service to the committee in drafting its final report and to the Council in disposing thereof.

In reaching its conclusions, the committee was influenced mainly by the fact that the present unsatisfactory conditions affecting the various branches of pharmacy are due in a large measure to the failure of these branches to properly coordinate their activities, and by the opinion, held by some, that the American Pharmaceutical Association is not rendering adequate service to the retail pharmacist in particular. In fact, the search for a means of remedying these conditions has been the impelling motive in drafting the plan here presented. The organization as outlined is intended to create a forum where all pharmaceutical associations and societies may get together on common ground for their mutual benefit, without losing their individuality or necessitating a curtailment of their activities. Even the local branches of the American Pharmaceutical Association as constituted at present may continue to function by operating as sub-divisions of their respective state associations.

It should be noted further, that the reorganization as here set forth will not necessitate the making of any great changes in our constitution, nor will the present funds of the Association be affected in any way. The by-laws of the Council, with slight changes, can be adapted to the Board of Directors, while the by-laws of the Scientific Section may be eliminated completely, if deemed advisable.

In the event that this plan is adopted by the Association at the Cleveland meeting, it is not proposed to put it into operation immediately, but that it shall first be submitted to the various state associations for ratification. It is intended that the plan shall be made operative only after a certain number of state associations, say 20, have given definite notice of their acceptance, that is, that they will come in with their full membership, when it shall automatically become effective. This procedure will give ample time for the necessary readjustment and avoid as far as possible any interruption of the present activities of the Association.

(Signed) C. H. LaWall, *Chairman*,
W. B. Day,
S. L. Hilton,
J. Hostmann,
E. F. Kelly,
W. F. Rudd,
A. G. DuMez, *Secretary*.

The organization plan follows:

AMERICAN PHARMACEU-

GENERAL SESSIONS: 1. Receive President's
2. Receive the report
3. Transact such other

ENTIRE MEMBERSHIP: Elect by mail ballot
(Privilege of voting is

Legislative and Business Organization.

House of Delegates.

Membership.

(Only members of the American Pharmaceutical Association in good standing, who have held membership for 2 years or more, are eligible.)

U. S. Army, 1.
U. S. Navy, 1.
U. S. Pub. Health Service, 1.
Sections of the A. Ph. A. (Scientific, Commercial, Historical, etc.), 1 each elected by the respective sections.
National associations, 1 each (to be admitted on application after approval by Judicial Committee.)
State associations, 1 for each 1000 or fraction thereof when membership is less than 1000, and 1 for each additional 750 where membership is over 1000.
Directors.

Officers.

Chairman.
Vice-Chairman.
Secretary (Secretary of Association).

Duties.

1. Elect:
   a. Chairman and Vice-Chairman of the House.
   b. Secretary of the Association on nomination of Board of Directors.
   c. Treasurer of the Association on nomination of Board of Directors.
2. Nominate:
   a. President.
   b. Vice-Presidents.
   c. Directors.
3. Ratify committees nominated by the President and Chairman of the House.
4. Receive reports of General Officers, Standing and Special Committees.
5. Select time and place of annual meetings.
6. Transact all general business of the Association not otherwise provided for.

Board of Directors.

Membership.

(Only members of the American Pharmaceutical Association in good standing, who have held membership for 5 years or more, are eligible.)

9 members, 3 elected annually, to serve for 3 years.
President (ex-officio with vote).
Secretary, Treasurer } ex-officio without vote.

Officers.

Chairman, Secretary } Chosen from the members of Board of Directors.

Duties.

1. Shall have charge and supervision of all property, finances and publications.
2. Appoint the editors (including the Editor of the Year Book) and necessary assistants.
3. Appoint the Local Secretary.
4. Nominate the Secretary.
5. Nominate the Treasurer.
6. Fix the salaries of officers.
7. Prepare annual budget.
8. Take over functions of the present Council not otherwise provided for.
9. Have seats in the House with the right to vote.
10. Act for the House in interim between meetings.

Standing Committees.

(Nominated by the President and ratified by the House or Board of Directors, unless otherwise provided for.)

1. Judicial Committee.
2. Board of Canvassers.
3. Committee on Membership.
4. Committee on State and National Legislation.
5. Committee on U. S. P.
6. Committee on N. F.
7. Committee on Recipe Book.
8. Committee on Syllabus.
9. Committee on Pharmaceutical Research.
10. Committee on Ebert Prize.

address and refer it to the House of Delegates.
of the House of Delegates.
general business as may be presented.
the President, Vice-Presidents and Directors.
limited to members in good standing.)

GENERAL OFFICERS.

(Elected annually to serve for a term of 1 year or until their successors are elected.)

President.
Nine Vice-Presidents.
(Eight to be elected from geographical districts of U. S., and one to represent non-resident members.)
Secretary (full-time.)
Treasurer.

Duties of President.

1. Preside at general sessions.
2. Prepare annual address.
3. Nominate standing committees and submit the names of the nominees to the House for ratification immediately after inauguration.
4. Ex-officio member of the Board of Directors.

Duties of Vice-Presidents.

1. Assist the President in the performance of his duties.
2. Ranking Vice-President shall officiate in the absence of the President.
3. They shall constitute the Committee on State and National Legislation.
4. They shall be the chairmen of the sub-committees of the Membership Committee.

Duties of the Secretary.

1. Keep the minutes of the general sessions.
2. Keep the minutes of the House.
3. Verify the credentials of members of the House.
4. Prepare for publication the official program.
5. Give notice of the time and place of annual and special meetings of the Association and House.
6. Notify officials of their election and committee members of their appointment.
7. Shall collect the dues of members.
8. Shall revise the roll of members.
9. Perform other duties directed by the House or Board of Directors.
10. Ex-officio member of Board of Directors.

Duties of the Treasurer.

1. Shall be custodian of all moneys, securities and deeds and shall hold same subject to the direction and disposition of the Board of Directors.
2. Ex-officio member of the Board of Directors.

SCIENTIFIC AND PROFESSIONAL ORGANIZATION.

SECTIONS.

1. Scientific.
2. Education and Legislation.
3. Practical Pharmacy and Dispensing.
4. Commercial.
5. Historical.
6. Manufacturing.
7. Hospital Pharmacy.

Special Committees.

(Nominated by Chairman of the House and ratified by the House or Board of Directors, unless otherwise provided for.)

1. Committee on Health Insurance.
2. Committee on Coöperative Publicity.
3. Committee on Patents and Trade-Marks.
4. Committee on Procter Memorial.
5. Committee on International Pharmaceutical Nomenclature.
6. Committee on Physiological Testing.
7. Committee on Status of Pharmacists in the Government Service.
8. Committee on Time and Place of Meeting.

VOLATILE OILS IN PILLS.*

BY PROF. H. G. GREENISH AND MISS C. E. PEARSON.

Although prescriptions for pills containing volatile oils are not so common now as they formerly were, yet they occur sufficiently frequently to make the best method of dispensing them a matter of interest and importance to the pharmacist. Most authorities[1] recommend trituration of the oil with powdered curd soap and addition of powdered liquorice root to the paste so produced until the requisite firmness is obtained. Others[2] either do not specify the variety of soap to be used or include both hard and curd soap.

As no record could be found of a definite series of trials with these or other soaps with the object of determining their relative values for the purpose experiments in this direction were commenced in 1918 by Miss Williamson, Redwood Scholar, and, after an interruption of two years, resumed by Miss Pearson.

The first step was the collection or preparation of a series of soaps. The following were obtained from the usual commercial sources:

Powdered Hard Soap (Sapo Durus, B. P.),
Powdered Curd Soap (Sapo Animalis, B. P.),
Powdered Magnesium Oleate,
Powdered Calcium Stearate,
Powdered Sodium Stearate.

The following were prepared in the laboratory:

Sodium Oleate,
Sodium Palmitate,
Sodium Stearate,
Sodium Cerotate,
Sodium Abietate (Resin Soap),
Sodium Soap from Cocoanut Oil,
Sodium Soap from Hardened Cottonseed Oil.

Sodium oleate was made by neutralizing oleic acid (B. P.) with sodium hydroxide in the presence of alcohol, evaporating to dryness and powdering.

In making sodium palmitate and stearate commercial palmitic and stearic acids were recrystallized from alcohol and similarly combined with sodium.

Cerotic acid was prepared by boiling yellow beeswax with alcohol, filtering the solution while hot, and allowing the filtrate to cool; the cerotic acid that separated out was collected, washed with alcohol, and the operation twice repeated. The cerotic acid was then combined with sodium.

Sodium abietate was made by dissolving amber resin in alcohol, neutralizing with sodium hydroxide, and evaporating to dryness.

Cocoanut oil soap was made by saponifying cocoanut oil with alcoholic solution of sodium hydroxide, evaporating off the alcohol, dissolving the residual soap

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* From the Research Laboratory. Read before an Evening Meeting of the Pharmaceutical Society of Great Britain. Reprinted from the *Pharmaceutical Journal and Pharmacist*, December 17, 1921.

[1] Squire, "Companion," 1916, p. 1025; "Art of Dispensing," 1908, pp. 86, 88, 110; Lucas and Stevens, "Practical Pharmacy," 3d Ed., p. 312.

[2] Barnard Proctor, "Lectures on Practical Pharmacy," 3d Ed., pp. 312, 335. British Pharmaceutical Codex, 1911, p. 1326.

in water, and liberating the fatty acids with hydrochloric acid. These were then washed with water and combined with sodium.

Hardened cottonseed oil was similarly treated, a very hard sample being used for the purpose.

Sodium cerotate was selected as it was thought that a soap made from a fat acid of very high molecular weight might differ in its action from a soap made from acids of lower molecular weight. Cocoanut oil soap was selected for the opposite reason, and soap made from hardened cottonseed oil was included because although doubtless the unsaturated fat acids with 18 carbon atoms are converted into stearic acid it is probable that other changes as well take place, giving rise possibly to isomeric acids.

The first series of experiments was made with 1 cc of volatile oil, 0.5 Gm. of soap, and from 1.5 to 2.0 Gm. of powdered liquorice root. The oil was triturated with the soap, and the powdered liquorice root gradually added. The volatile oil employed was dementholized peppermint oil. The following results were obtained:

	Oil.	Soap.	Liquorice Root.	Remarks.
Sodium oleate.....	1.0	0.5	2.0	Soft and oily
Sodium palmitate.....	1.0	0.5	2.0	Soft
Sodium stearate.....	1.0	0.5	1.5	Good mass
Sodium stearate.....	1.0	0.5	2.0	Inclined to crumble
Sodium cerotate	1.0	0.5	2.0	Very good
Sodium abietate.....	1.0	0.5	2.0	No absorption of oil
Hard soap.....	1.0	0.5	2.0	Soft
Curd soap.....	1.0	0.5	1.5	Good but not so good as stearate
Curd soap.....	1.0	0.5	2.0	Inclined to crumble
Cocoanut oil soap.....	1.0	0.5	1.8	Good
Hard-cotton-oil soap..	1.0	0.5	1.5	Very good
Magnesium oleate.....	1.0	0.5	1.5	Oily
Calcium stearate.....	1.0	0.5	1.5	Oily

From these experiments it appears that sodium abietate has no appreciable action in absorbing the oil. Magnesium oleate and calcium stearate are unsatisfactory under the conditions given. Sodium stearate is rather more efficacious than ordinary curd soap, considerably better than sodium palmitate and than ordinary hard soap, and far better than sodium oleate. Sodium cerotate seemed to give a rather better mass than sodium stearate, but the difference was not marked. Cocoanut oil soap was distinctly better than sodium stearate, while the soap made from hardened cottonseed oil was the best of all; indeed, further experiments showed that even in the proportion of 1 cc of the oil, 0.3 Gm. of the soap, and 1.5 Gm of powdered liquorice root a good mass was obtained.

With magnesium oleate a fairly good, stiff mass was obtained with 1 cc of the oil and 2.2 Gm. of the oleate, and calcium stearate in the proportion of 5.0 Gm. to 1 cc of the oil also gave a good mass. Neither of these substances, however, has any appreciable advantage over the sodium soaps.

A further comparison was made with sodium stearate, curd soap and hard soap, the proportion of soap being increased and that of the liquorice powder diminished.

	Oil.	Soap.	Liquorice Root.	Remarks.
Sodium stearate.....	1.0	1.0	1.5	Very good mass
Curd soap	1.0	1.0	1.5	Not so good
Hard soap.....	1.0	1.0	1.5	Distinctly soft

Again, curd soap is better than hard soap, and sodium stearate is better than either.

In the next series of experiments sodium stearate was used in varying quantities and sufficient liquorice powder added to produce a good mass:

	Oil.	Soap.	Liquorice Root.	Remarks.
Sodium stearate.....	1.0	0.4	2.0	Good mass
Sodium stearate.....	1.0	0.5	2.0	Good mass
Sodium stearate.....	1.0	1.0	1.5	Good mass
Sodium stearate.....	1.0	1.5	1.0	Good mass
Sodium stearate.....	1.0	2.0	0.5	Good mass

In all the foregoing experiments the oil was mixed with the soap and the powdered liquorice added. No difference could be detected when the oil was mixed with the liquorice powder and the soap added.

As the powdered liquorice root used to stiffen the soft mass of soap and oil consists mainly of water-soluble substances, starch, and the more or less broken parenchymatous cells, vessels and fibers, it was thought desirable to ascertain whether any one of those constituents had any special advantage over the others for this purpose. Accordingly, some of the powdered liquorice root used in the foregoing experiments was exhausted by repeated maceration with chloroform water and decantation, the insoluble matter being collected, washed, dried, and powdered. From a portion of this the starch was removed by kneading under water in a linen bag, collected, washed and dried. Another portion was entirely freed from starch by boiling with dilute hydrochloric acid, the residue collected, washed, and dried. Using 1 cc of the oil and 1 Gm. of sodium stearate, the following quantities were required:

Water-insoluble residue	1.5 Gm.
Starch	1.0 Gm.
Fibrous material	1.0 Gm.

Of these three masses, that made with the fibrous material was the best.

Barnard Proctor[1] found that exhausted quassia wood was better than disintegrated blotting paper, sarsaparilla root, or liquorice root for imparting retentiveness of shape to a soft pill.

Harold Wyatt[2] recommended powdered chamomile flowers for the same purpose. Experiments were accordingly made with powdered quassia wood, and powdered chamomile flowers, and also with kaolin and calcium phosphate. Of these powdered quassia proved to be the most efficacious, 0.6 to 0.7 Gm. being sufficient to stiffen a mass made with 1 cc of oil and 1 Gm. of sodium stearate.

As it was thought that possibly oils of varying composition might require varying amounts of soap for their absorption, comparative experiments were undertaken with dementholized oil of peppermint, clove oil, cajuput oil, caraway oil,

[1] *Loc. cit.*

[2] *Pharm. Journ.*, [4], 38, 518.

and cassia oil. In each case 1 cc of the oil was used with 0.5 Gm. of soap made from hardened cottonseed oil and 1.5 Gm. of powdered liquorice root. No appreciable difference could be detected.

In none of the works to which reference was made could any explanation be found of the action of the soap in absorbing the oil, and the foregoing experiments fail to throw any light on the matter. While it is true that the sodium soaps of oleic, palmitic and stearic acids show increase in the absorptive power with increase in the molecular weight of the fat acid, the opposite is the case with soap made from cocoanut oil and sodium cerotate failed to show the advantage expected of it. It occurred to us that possibly part of the soap, with the aid of the moisture still present in it, and also in the powdered liquorice root, might emulsify the oil and so allow of its incorporation into a pill mass. A mass was accordingly made with sodium stearate and powdered liquorice root, both previously dried at 100°. No difference was perceptible. The addition of 0.2 cc of water to 3.5 Gm. of mass was not followed by any material alteration, but the addition of larger quantities led to unsatisfactory results. If emulsification of the oil had taken place, microscopical examination might be expected to show the oil in minute globules. To render it more easily visible the oil was deeply stained with Sudan-red. In no instance could globules of oil be detected; it appeared rather to be distributed throughout the mass in the form of a more or less uniform film.

M. E. Laing and J. McBain,[1] in their researches on soap, have shown that an aqueous solution of soap can be brought at will into any one of three typical states—*viz.*, a clear, oily, liquid sol, a transparent, elastic gel, or a white, opaque solid curd. A soap curd is a sol or gel from which a part or nearly all of the soap has been abstracted through the formation of white curd fibers. The distinctive structural feature of soap curd is the separation of hydrated soap as a felt of long, white fibers of barely microscopic diameter. This formation of curd is analogous to a process of crystallization. A transparent soap is a gel, but hard commercial soaps are gels, containing a felt of curd fibers.

It would appear possible, then, that if the oil could penetrate the particles of the dry powdered soap with which it is triturated it might form a very thin film, covering the curd fibers and becoming enmeshed in them. The total area of the curd fibers must be exceedingly large on account of their very small diameter, and the film of oil covering them, or possibly adsorbed by them, would be exceedingly thin. To ascertain whether a volatile oil can readily penetrate dry soap, the following experiment was made: A piece of hard, dry soap, many years old, was immersed in peppermint oil deeply stained with Sudan-red. In the course of a week the color had penetrated into the soap to the depth of about 1 to 1.5 mm. At the same time, the weight of the soap had increased by about 15 percent, showing that infiltration of the oil had accompanied infiltration of the color; the outer layers of the soap became simultaneously softened, and a small portion passed into solution. Infiltration of the oil into the particles of the soap and adsorption by the curd fibers of which the soap largely consists must, therefore, be admitted as a possible explanation of the action of the soap in absorbing the oil.

The chief results of the foregoing experiments are:

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[1] *Journ. Chem. Soc.*, Dec. 1920, p. 1506.

1. Of the soaps that are at present commercially available sodium stearate is the best for absorbing volatile oils.

2. Soap made from a strongly hardened cottonseed oil, if procurable, would be still better.

3. The best material for stiffening the soft soap and oil mass is a fibrous material, such as powdered quassia wood.

4. The peculiar property possessed by soap of absorbing the oil is probably infiltration of the oil into the particles of the soap and its adsorption by the curd fibers of which the soap largely consists.

ABSORPTION OF VOLATILE OILS BY FATTY ACIDS.

Induced by the foregoing paper, Mr. Cofman-Nicoresti reports on his work on the absorption of volatile oils and other liquids by salts of higher fatty acids, in the *Chemist and Druggist* of December 31, 1921. The article follows:

"In 1915, while making solidified alcohol for use in the Army, I came to the conclusion that salts of higher fatty acids crystallize in the shape of a spongy compound, which retains the whole of the liquid in which they were dissolved, forming what is, for all practical purposes, a solid body. In order to confirm my assumption I conducted various experiments, starting with turpentine, rectified oil of amber, and almost every volatile oil in turn. After a little while I succeeded in making solid shapes containing as little as 5 percent of salts of fatty acids. In the case of turpentine, though the experiments were dangerous and troublesome, the result proved to be an ideal liniment, containing no water, and which is completely absorbed by the skin. (Pat. 18,060/1915.)

"My next step was to dissolve various drugs like phenol, iodine, etc., in liquid paraffin, glycerin, and in other liquids, and the results proved satisfactory in so far as they did not affect the spongy compound and the solutions did not undergo any changes. (Pat. 6,198/1916.) It seemed clear to me that this process would prove very useful in the manufacture of suppositories, and also of ampuls, where the glass tubing could be conveniently replaced by the soap enclosure. Then I proceeded to subject the various liquids to currents of gases like ammonia, formaldehyde, etc., and found that these gases were retained in the resulting solids and could be recovered on warming. (Pat. 1,415/1917.) Chloroform, amongst other liquids, gave good results, but cresol proved a dangerous element. After many experiments, and after having succeeded in incorporating a large number of different liquids and solutions into salts of higher fatty acids, I believe I have established the following facts, which may prove of use to soap analysts and those interested in the chemistry of higher fatty acids:

"That salts of higher fatty acids, when in solution, crystallize in the shape of a spongy mass, which retains the whole of the liquid in which they were dissolved.

"The liquids from which the salts of higher fatty acids crystallize in a spongy shape are usually of the nature of an alcohol.

"The formation of this spongy compound takes place at a given concentration, usually above 5 percent."

By means of heat a much larger percentage of salts of fatty acids can be incorporated, without apparently interfering with the absorption of liquids, but naturally diminishing the amount absorbed.

The spongy compound formed is what I presumed to be a definite salt of stearic and palmitic acid, which I called stearo-palmitate of soda. (Pat. 18,060/-1915.)

This stearo-palmitate compound is always formed, apparently, at the boiling point of the liquid in which it is dissolved, and not at a fixed temperature.

The amount of liquid retained does not vary with the nature of the different liquids, but seems to be the same for all liquids under the same conditions.

Many chemists, and even expert analysts, look upon these solidified preparations as being soaps or, more precisely, medicated soaps. The facts do not confirm this view. While medicated soaps contain the various ingredients, in the shape of a salt like sodium phenate or sodium stearo-cresolate, etc., these ingredients cannot be extracted, except by a breaking-down of their salts. In the solidified preparations the liquids can be obtained in their normal state by simple pressure, without any physical or chemical change. The whole of the liquid solution, chemically and physically unchanged, can be recovered by evaporation, leaving the spongy case behind. I tried to submit various slides of these preparations to microscopical examination, but the difficulty of staining without dissolving them could not be overcome. I then tried polarized light, with splendid results, clearly revealing the structure of the spongy compound, with its series of sparkling crystals, in symmetrical rows, and intervening liquid, looking like a diamond studded map. I hope on a future occasion to show the importance of polarized light in the analysis of soaps.

ACETYLSALICYLIC ACID IN SODIUM CITRATE SOLUTION.*

BY PAUL NICHOLAS LEECH, PH.D.

Acetylsalicylic acid ("aspirin") is dispensed in dry condition because it is easily decomposed in the presence of moisture; also it is insoluble in water. However, articles have appeared recently in both medical and pharmaceutic literature claiming that acetylsalicylic acid may be dispensed *in solution* by aid of sodium citrate; also that the acetylsalicylic acid would not be decomposed. For instance, the following, which was probably abstracted from some American pharmaceutic publication, appeared in the *Prescriber*:[1]

> Acetylsalicylic acid (aspirin) is practically insoluble in water, and though soluble in alcohol such a solution is not generally suitable for administration. It is therefore usually given in tablets or cachets. Solution may be effected by addition of sodium bicarbonate, but as the resulting solution is merely a mixture of sodium acetate and sodium salicylate, this method is not admissible. It is said that sodium citrate will dissolve acetylsalicylic acid without dissociation: for each grain of aspirin 4 grains of sodium citrate should be added. Such a solution, flavored with syrup of lemon, is suitable for administration to children.

The usual test for decomposition of acetylsalicylic acid is the detection of the freed salicylic acid by means of ferric chloride solution. It occurred to me, therefore, that possibly such a test was used as a basis of the contention of the non-decomposition of acetylsalicylic acid in sodium citrate solution. If so, the seem-

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* From the Chemical Laboratory of the American Medical Association, and reprinted from the *Journal A. M. A.*, January 28, page 275.

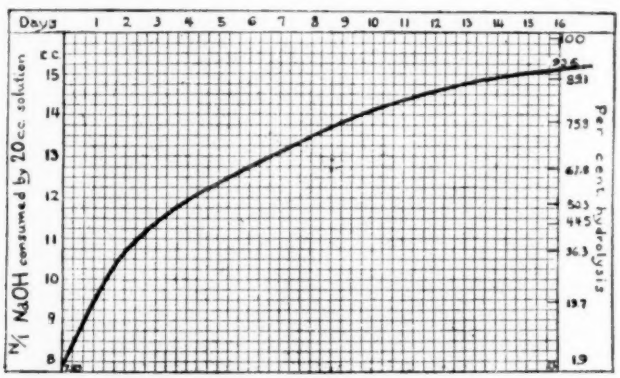
[1] "Solvent for Acetyl-Salicylic Acid," *The Prescriber*, June 1921, p. 247.

ingly negative reaction obtained may be misinterpreted, because citric acid, and citrates, interfere with the sensitiveness of the test, and hence it would not be reliable in the case at hand. To test this hypothesis, a solution was made up and the rate of hydrolysis determined by titrating with normal alkali during stated intervals. The solution was prepared by dissolving about 18 Gm. of pure acetylsalicylic acid and 72 Gm. of sodium citrate in 240 cc of water; after standing three hours it was filtered, and 20 cc used for the individual determinations. One teaspoonful of such a solution would represent about 5 grains of acetylsalicylic acid. The results of the titration will be found in the accompanying table. The solution was maintained at room temperature.

RESULTS OF TITRATION.

Interval of Time.	Cc of N/1 NaOH Consumed by 20 Cc of Solution
3 hours	8.0
1 day	9.4
2 days	10.7
3 days	11.35
3⅝ days	11.80
6 days	12.70
9 days	13.80
14 days	14.85
17 days	15.20
Complete hydrolysis	15.70

As will be noted in the accompanying chart, acetylsalicylic acid is hydrolyzed fairly rapidly in sodium citrate solution, over 50 percent decomposed in four days,



Hydrolysis of Acetylsalicylic Acid in Sodium Citrate Solution.

and 75 percent in nine days. Thus a patient taking such a mixture which was 9 or more days old would be getting essentially the same ingredients as if sodium acetate and sodium salicylate had been used in place of the acetylsalicylic acid.

Obviously, the assertion that acetylsalicylic acid is not broken down to form salicylic acid and acetic acid (or their salts) is not based on scientific work.

The hydrogen-ion concentration of the citrate solution alone was $p_H = 9.0$; after addition of acetylsalicylic acid, it was $p_H = 5.4$; after seventeen days it was $p_H = 4.6$. Thus it may be seen that the solution is appreciably acid, sufficient to decompose hexamethylenamine, with which it has been recommended to be dispensed.

Very recently 1 part of potassium citrate has been suggested in place of 4 parts of sodium citrate. Such a solution would hydrolyze, if anything, faster than one made with a higher concentration of the sodium salt.

CONCLUSION.

It has been claimed that acetylsalicylic acid may be dispensed in a solution of sodium citrate without decomposition of the acetylsalicylic acid. The experiments here reported show that this is incorrect; that after four days the acetylsalicylic acid is broken down to the extent of 50 percent; after nine days, to 75 percent, and that in seventeen days it is almost completely hydrolyzed.

SOLUBLE COMPOUND SPIRIT OF ORANGE AND A SIMPLIFIED PROCESS FOR AROMATIC ELIXIR.*

BY ERNEST R. JONES.

One of the simplest galenicals of the United States Pharmacopoeia to make is Aromatic Elixir and it is regrettable that so many pharmacists have given up the manufacture of this product. Yet, the fact is not to be wondered at for, simple as the formula appears, its clarification is very trying on one's patience, and the usual result is a cloudy preparation even after many repeated filtrations.

Some may disagree with me here and say, if I would try magnesium carbonate, I would have no trouble. I grant you that the clarification would then proceed beautifully, but we know that magnesium carbonate is slightly soluble, makes an alkaline elixir which may lead to dispensing difficulties, and must therefore be ruled out.

The reason for the difficulty in clarification is easily understood when the composition of the oils entering into the formula for Compound Spirit of Orange is studied. Only small fractions of oils of orange and lemon are of value as flavors, the balance of the oil being made up of various compounds, known as terpenes. These terpenes are soluble only in strong alcohol, have no flavor value and easily oxidize to products much resembling turpentine in odor. Oil of orange contains about 95 percent, oil of lemon about 90 percent, and oils of coriander and anise, none, or not more than traces of terpenes. In the case of the first two mentioned oils, this leaves a balance of only 5 and 10 percent, respectively, for the active flavor and associated compounds.

It is possible to separate and remove most of the terpenes from these two oils and thus obtain concentrated or so-called "terpeneless oils," which are much more soluble in low percentage alcohol. Terpeneless oil of lemon contains 60 percent citral, or is 15 times more concentrated than the U. S. P. oil of lemon which has a 4 percent citral content. Oil of orange is not standardized as to the content of any one compound, but the terpeneless oil of orange, I am reliably informed, is thirty times the U. S. P. strength. As experiments prove that the difficulty in clarifying the elixir is due to the terpenes in these two oils,[1] an elixir made from a Compound Spirit of Orange—which in turn is made from terpeneless oils—should be comparatively easy to clarify. We can go a step further and treat the Compound

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., New Orleans meeting, 1921.

[1] Oils of coriander and anise as used in Aromatic Elixir cause practically no cloudiness.

Spirit of Orange so that it will mix clear with syrup, alcohol and water in the proportions of Aromatic Elixir thus making the preparation of this product extremely easy and simple.

The following formulas are submitted:

SOLUBLE COMPOUND SPIRIT OF ORANGE.[1]

	A.	B.	C.
Oil of Orange, terpeneless	6.00 cc	96 minims	1 fluidounce
Oil of Lemon, terpeneless	3.00 cc	48 minims	1/2 fluidounce
Anethol	4.00 cc	64 minims	320 minims
Oil of Coriander	12.00 cc	192 minims	2 fluidounces
Alcohol			
Distilled Water, each, a sufficient quantity			
Purified Talc	15.00 Gm.	1/2 ounce	2 1/2 ounces
To make	1000.00 cc	32 fluidounces	10 pints

Dissolve the oils and the anethol in the alcohol ("A" = 540 cc, "B" = 18 fluidounces, "C" = 4 1/2 pints) and add sufficient distilled water to make the required quantity. Add the purified talc and shake well for several minutes. Set aside for several days, shaking it frequently. Filter through paper in a well-covered funnel, and wash the filter with sufficient diluted alcohol to obtain the required yield.

AROMATIC ELIXIR.

Soluble Compound Spirit of Orange	30 cc	1 fluidounce
Alcohol	240 cc	8 fluidounces
Syrup	375 cc	12 fluidounces
Distilled Water, a sufficient quantity		
To make	1000 cc	32 fluidounces

Mix the Soluble Compound Spirit of Orange with the alcohol, add the syrup and then sufficient distilled water to make the required yield.

In practice these formulas have been found to give an Aromatic Elixir checking up so closely in flavor and strength with the present U. S. P. product as to be an acceptable replacement. The value of the formulas to the retail pharmacist will be quickly apparent.

LABORATORIES OF G. M. SCHETTLER,
DETROIT, MICH.

SUPERIOR OINTMENT OF AMMONIATED MERCURY BY THE WET PROCESS.*

BY ERNEST R. JONES.

The "wet process" of preparing ointments is not original with the writer, for many manufacturers have been preparing Ointment of Yellow Oxide of Mercury in this manner for some years. The only wonder is that it has not been extended to more ointments.

The "wet process" is applicable to any ointment when the insoluble solid medication can be prepared by precipitation. It differs from the usual method of preparing ointments by incorporation, in that the precipitate is never allowed to become dry, thereby eliminating the gritty particles which come from drying of

[1] Anethol, the active principle of oil of anise, is preferred in this formula, and slightly less of it and oil of coriander are purposely used with an idea of improving the flavor.

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., New Orleans meeting, 1921.

the moist precipitate and which are so difficult to finely pulverize when preparing the ointment.

The process used for preparing the ammoniated mercury is that of the U. S. P. VIII with modifications which produce a finer precipitate. A calculated amount of mercuric chloride is used so as to produce one-tenth as much ammoniated mercury as you are to prepare of ointment. Instead of using hydrous wool fat in the ointment, we use the anhydrous and so drain the ammoniated mercury that the moisture retained equals the amount that would have been in the hydrous wool fat. The resulting ointment is beautiful, the ammoniated mercury being so fine that some have accused us of not putting any in the ointment. Of course, they were looking for the usual gritty particles.

The formula is as follows:

OINTMENT OF AMMONIATED MERCURY.

Mercuric Chloride	108 Gm.
Ammonia Water, Stronger	60 cc
Wool Fat, Anhydrous	280 Gm.
White Petrolatum	500 Gm.
Distilled Water, a sufficient quantity	
To make	1000 Gm.

Dissolve the mercuric chloride in 2000 cc of hot distilled water, cool and filter and add 2000 cc of distilled water. Slowly and while stirring continuously, pour this solution into the stronger ammonia water previously diluted with 2000 cc of distilled water. Allow the precipitate to settle and decant the supernatant liquid as closely as possible. Add 5000 cc of distilled water to the precipitate, stir well, allow to settle and again decant the supernatant liquid. Repeat this process twice more or until the decanted liquid no longer contains ammonia. Transfer the precipitate to a suction filter and drain till the precipitate cracks. Remove and transfer to a tared mortar or suitable dish and add sufficient distilled water to make the moist precipitate weigh 220 Gm. Incorporate it with the wool fat which has been previously melted and triturate till a smooth homogeneous ointment is obtained; then incorporate the white petrolatum.

Comments.—Although the formula specifies distilled water as a precaution, I found tap-water equally satisfactory and would say that if your tap-water is reasonably pure, the use of distilled water is an unnecessary expense.

The strength of the reacting solutions is more dilute than the U. S. P. VIII process and produces an impalpable powder.

The addition of a little ammonia water to the wash-water is unnecessary and would prove very irritating if any were left in the moist precipitate.

The bulk of the precipitate is so great that it will not settle enough to allow the required amount of water to be decanted. I tried decanting as closely as possible and then transferring to a tared porcelain dish and evaporating on a water-bath to proper weight. It was not successful for the precipitate dried hard and gritty on the sides of the dish and became slightly yellow in color. The first trouble might be overcome by careful attention while evaporating and the second by keeping a trace of ammonia present. But the most satisfactory of all is the suction filter. If the precipitate is drained until it cracks, it can be removed from the paper in lumps and does not adhere to it at all.

LABORATORIES OF G. M. SCHETTLER,
DETROIT, MICH.

SUBURBAN PHARMACY CAN BE MADE PROFITABLE IF CONDUCTED IN ACCORDANCE WITH ADVANCED BUSINESS IDEAS.*

BY FRED W. AMES.

Evolution presents itself in some manner or form in every walk of life, and time has wrought many changes in the ethical and commercial sides of pharmacy. These changes are very evident in the retail store of to-day. I am sure that many of us in our bottle-washing days had the usual life's dream—"if I were boss, how I would run the store;" as time rolls on the boy of yesterday becomes the clerk of to-day, and eventually the proprietor. I observe many a proprietor unconsciously falls into the same groove as his boyhood days' boss.

In operating a store Dr. Jekyll and Mr. Hyde shows up in many of us, and to put life's dream into execution takes nerve. Every sky has its cloud, as every cloud its silver lining, and as it has been with many of us, I have had mine. Now I am going to unfold the story of how I conduct my store. Should the pronoun "I" occur frequently, I request that you be as charitable with me as you are in parting with your profits.

You will admit that the pharmacist and pharmacy as a profession are some distance from par. To conduct a pharmacy differently from the usual store has ever appealed to me, at the same time I thought the success of my methods would be a stimulating example to others and perhaps, in a small way, helpful to pharmacy in our city.

Possessing the cardinal points, having had the experience, knowing the business, having some money, also credit and nerve in sufficient quantity to suit conditions, I opened up. My store is located in the upper part of the city (New Orleans)—a residential neighborhood, locally known as the "silk-stocking" division. How are you going to operate your store? was the usual question. "Run your Business"—many exclaimed in horror—"that will never do; you will go broke in six months." "Let the public run your store"—meaning "let them operate your dollar"—was the nature of the advice handed me. Such advice being foreign to my make-up, "the glad hand became the cold mitten." Advice and observation drew the line of demarcation, and I concluded, "my dollar my way; where I am right I will be right and where I am wrong I will be wrong." I opened a neat and up-to-the-minute store, rated "Excellent" by state and city health boards. Such conditions I maintain at all times. I keep my store clean because it is a part of my make-up, and I feel should I deviate from cleanliness my investment would depreciate, which should not happen. With a large part of the public cleanliness is not considered at all.

INVENTORY AND PROFITS.

November next will complete my eighth year of business. For the first seven months I met all conventional prices ruling at that time. The inventory of the following June showed a deficit; I "raised the ante and the usual discards" took place. Another year rolled by, with more deficit. Had the calls, but stood pat on "No sales without a profit;" some of the public are unwilling to allow a legitimate margin. Stock-taking reveals a true condition; from time to time

* Parts of a paper presented before Section on Commercial Interests, A. Ph. A., New Orleans meeting, 1921.

I've raised my prices to adjust conditions. I am going to make my profit, and I don't care how high the wholesale cost goes. But, I do care, and have kicked and will continue to kick many articles out of my store, when the manufacturer charges more and advertises them to the public at the same old price. When the manufacturer wants to play the philanthropist, let him do so, but, not at *my expense;* I like to have my way in such matters. In advertising, I use the expression "Dependable drugs;" I make all of my pharmaceuticals, likewise my own preparations; no doubt this comes high in some cases; however, when your trade is aware of such methods they repose confidence in you, and individuality counts. In a general way I have done considerable advertising (spent about $3,000 in 8 years). My trade comes by volition and usually pays me a higher price than they have been paying; I use neither religion nor lodges with the high sign to attract them. I show them my store and explain my methods; if it appeals to them we do business. Every time my store is mentioned it's good business whether they become customers or not. By such methods I have built up a neat and clean clientele; they are not shoppers, and they know my methods of doing business. My customers, in changing, usually call me up and mention the fact. I ask the following questions: Any complaint on drugs? No. What about the service? Excellent. You find my prices high? Yes. "Madam, while I regret to lose you as a customer, in a measure I consider this a compliment. Should you wish to reopen your account on the former basis I'll be pleased to have your patronage." I give my customers good treatment; this they realize and many who leave me return and become permanent customers.

I stock the usual line of sundries; my profits thereon come from frequency of call rather then cost. All patents are sold at full prices. Imported colognes, etc., I have not stocked for four years; I endeavor to avoid disputes, and as the department stores sell these goods to the public at cost, I direct this business to them. The usual and unusual sick room necessities are always on hand.

PRESCRIPTION DEPARTMENT.

My prescription department is quite complete. This department carries cost of drugs plus knowledge and time charge, and I have educated my clientele on that point. The prescription is the "passenger train" of my store. Example of prices: One ounce of saturated solution of potassium iodide, $1.25; dropper 10c extra; tincture of nux vomica in drop doses, 85c to $1.25; half ounce of ointment, 75c up; one ounce, $1.25 up; three to four baby powders, 50c to 75c; one dozen powders, not less than $1.25, and up; narcotic prescriptions, minimum $1.00; three to four codeine tablets, $1.00; one dozen 1/4 gr. codeine tablets, $1.35; pills, 20 to 30, $1.25 to $1.75; 40 pills at 5c each, when in capsule, more; the average 12 capsule combination, never less than $1.25; 2 ounces of liquid, $1.25; 3 ounces, $1.35 up; 6 ounces, $1.50 up; suppositories, half dozen, $3.00; one dozen, $5.00 to $6.00; liniments run 50c per ounce in quantity of 4 ounces up. Eye and skin consultation prescriptions carry an extra charge. On other prescriptions one should consider the cost of material, also the number of doses, and figure the cost on dose. In every line the strong pays for the weak.

Herbs, chemicals and finished pharmaceuticals have all advanced, whether home-made or ready-made, likewise specialties. Bottles, corks, labels, boxes, paper, etc., have had their airship turns. To offset this increase in the prescrip-

tion department my average on prescriptions has advanced accordingly: 1912—50c; 1913—60c; 1914—65c; 1915—77c; 1916—79c; 1917—82c; 1918—97c; 1919—$1.04; 1920—$1.17; half of 1921—$1.27; volume has held up good; I have conserved energy and stock.

A service charge is made on all night work, one dollar being the minimum fee. The physician has three scales for the same service, *i. e.*, office charge, bedside, and night call, and no one takes offense at him; why should the corner druggist be the exception?

I have only a very limited amount of money invested in patent medicines; I endeavor to turn that stock every sixty days. I have a soda fountain and the attending troubles. This department, from my observations, requires careful watching in order to operate it at a profit.

What discount means for the note, bookkeeping means for the business; even then business is somewhat of a gamble, and one should know what his profits are; a gambler never has a loss. I can find my first check, my first bill, my first statement and my first "lemon letter" from the wholesaler as quickly as the last one thanking me in endearing terms for my remittance. I charge myself with every item taken from stock; my name appears on the customers' ledger. When I close at night I know approximately how much I have made or lost; every night all work for the day is cleaned up—new business begins on the morrow. I make monthly trial balances, render a periodical financial statement to the agencies, and also to the bank. Everything over $2.00 is paid by check. I keep copies of all deposits, which settles disputes where checks are cashed for customers. Suburban banking facilities and keeping change run newspaper advertising a close race for first place. These are customers' privileges.

BUSINESS RECORDS.

Every June, between the 20th and the 25th, stock is taken. Our yearly estimates are based on 33$^1/_3$ percent, and it generally runs to 40 percent and better; I now base it on 50–50; I have heard this expression so often it appeals to me, and as I use multiplication on charging and division on profits, it is no more than natural that I should be inoculated. This is no wild boast; having everything on my finger tips, and because cost is known. For my personal information I keep a little handbook, a confidential monthly synopsis on the business. If necessary, charges can be changed according to the records.

The general cash book is most important—for ready reference it cannot be equaled. The credit side of my cash ledger has the following divisions—Bank, Soda Sales, General Sales, Expense, Sundries. The debit side—Personal, Soda Account, Bank, Merchandise, Expense, Sundries. It takes just a moment of your time to obtain information. I keep all records in my safe for the alloted legal time—inventories since I first opened. Should I have a fire the current bills for the month would be the only trouble in connection with settlement.

Between bookkeeping, our synopsis and a general sizing up of stock, our estimate is always within one hundred dollars of merchandise on hand. This I would call team work. Since Sunday closing I have found this exception; with seven months of Sunday closing, which came within 1920, I found $450.00 more stock on hand than I ever had before; with twelve more months of Sunday closing, and

a falling market, I have found $525.00 more. This makes a fellow think of the leaks that he had on Sunday opening.

A complete list of accounts collectable and bills payable is struck off every month. This is vital information for the business. All invoices are pasted in invoice books and these books are properly numbered when filed away, likewise all other books pertaining to the store or business. I have a complete record of all advertising, which is carefully pasted in an invoice book; this refreshes one's memory and prevents duplication. I believe in writing my own advertisements.

I carry full insurance at all times; this protects me and my kind friends who trust me with their merchandise on credit. Everyone in your employ automatically becomes your agent; this places all responsibility on the boss, and in the eyes of the law you are It. To cover all conditions that might arise from error or spite, I carry defense insurance. My slumbers are not disturbed. With these days of delivery I want to impress the fact that a preparation or article properly dispensed or put up, properly labeled as to contents and properly tagged as to destination does not absolve or mitigate damages should your delivery boy leave it at the wrong house and they open the package and sustain injury. The charge would be that the delivery boy, your agent, did not show due care in making delivery, and you, as principal, are liable. Let this soak in and let it go down to the bone. The sword of Damocles is ever over your head. When it falls "you pack your grip and hit the trail"—everyone can come back, but the corner Druggist.

When I mentioned my prices, I imagined the impressions of some of you, charging me with extortion. Do you now think that my charges are too high for the risks I run? You have the same risks; are your charges what they should be? When you return to your homes consult with the one who pays your bills—the one who operates your store; are you and your family getting what you should out of the business, and are you properly protected? Some of you are not; your store is an asset while you are living, and a liability when you close your eyes. The mercantile agencies quote a drygoods store 50% quick asset; a retail drug store is not listed; you are not even on the horizon, and you hear business is on the square—you are or were on the corner, and that's all. You are there from 6 to 12, on some corners (many of you know your customers and their children better than your wife and your own children), working away thinking you are making money and saving humanity—far from it. Why should you not answer a rap on the counter and call from the front, "hurry up, I want to catch the car," for 5 cents' worth of stamps, and receive a call-down for charging 30c for some article that formerly sold for 25c, notwithstanding the 25 to 50 cent raise by the manufacturer, who continues to advertise the article for 25c? They tell you to purchase in quantity and work on the turnover; they have taken good care of themselves and leave you to the blistering sarcasms of the customer. You—a commercial man, and often a college graduate—stand for it, but bemoan conditions and condemn the business. I call my customers' attention to the facts. My flash point is low when denied a profit. The armadillo is protected by flexible horny plates, and when frightened or attacked he rolls up in a ball and can and will stand for all the abuse any other animal cares to inflict. I have observed that many pharmacists are of the armadillo type, and I often wonder, when they await penance on judgment day, will they again be up against long hours, no profits, and abuse?

As a chain is no stronger than its weakest link, the same can be said of a business that has a delivery system; more so when their delivery is a bicycle. I don't know who claims the honor for introducing this method; however, I am sure he was punished for this infliction. I use bicycles and the sons of "Ham" for jockeys, on a yearly basis; the cost per boy and wheel in eight years has advanced from $1.00 to $2.50 per day. It takes careful supervision to keep it at that figure.

C. O. D.'s are a source of trouble to many; I use the charge slip on the cash register for C. O. D.; for example, on a 20c purchase (most of my business is by 'phone), I strike out a 20c ticket, giving change for the difference of a dollar, unless instructed to send more; the change in this case would be 80c. The boy's name and street address of package is noted on charge ticket, also the amount of change given him. Upon his return the ticket is handed him, and he digs up the dollar. As long as this ticket is in the drawer the money is out, and I take no excuse from the boy. It's needless to say I have no losses from C. O. D.'s. Should the customers change their mind and want a charge, the boy is instructed to have them 'phone the store; this method keeps my boy and the house help honest. No collusion. I never send out more than one dollar change at night; many attempts are made to pull off the old trick, but it does not work at my corner. I never trust new boys with more than a dollar change; temptation is not thrust upon them.

Keeping a store clean is a proposition to many; this gives me little concern. The day, as well as the week, is split up for duties, death and sickness being the only things that break into my system with my help. An edge becomes a wedge, and never let anyone hold the big end. Every part of my store is cleaned on a ten-day trip. The soda fountain has daily attention, and a weekly bath. The complete cleaning is strictly porters' work.

I keep soda and ice cream, with a limited variety of trimmings; no street servings and special cash price. When regular customers want a charge they are informed as to charge price. My charge price varies from two to four cents additional. On the drug end I get away from small sales; there is such a thing as a sale being made at a loss. The retail drug business is a business of small sales, therefore never make a sale without a profit. The head of a nail keeps the shingle on the roof; likewise profit keeps the sheriff away and provides cash for the rainy day. One should not take snap judgment on pricing prescriptions (85 percent are underpriced); "He who hesitates is lost" does not hold good in pricing them. I keep up on prices of all kinds—often get in touch with the wholesaler by 'phone. I observe the slogan of the day, "Safety First," and find that it pays. It keeps you from doing the customer or yourself an injustice. My library of prices is complete; I never put a price list away without looking it over; this is done at once.

As to open accounts, I use the duplicate system; customers' bills are always up to date. I never disappoint myself or a customer on a bill. It's handed to them in a sealed envelope by boy, or mailed on the last day of every month. In eight years I have never missed getting the bills out on time; incidentally I wish to invite your attention to the fact that the weather is always good on the last two days of the month, so I make hay while the sun shines. Sixty-five percent of my business is done on credit. I never refuse credit. I don't care for references; I tell the customers if they are honest they will pay, and if they are dishonest they

will not. I also tell them when a drug bill is beaten they come awfully low in the moral scale; standing in the community is no line-up on them either. I sue when necessary. I personally know very few of my customers; I recognize their voice, know their signature, execute the order, get the check on pay day. This is clean business—the kind that appeals to me.

SUNDAY CLOSING.

A little more information on Sunday closing. In the early part of 1919 I tried to induce the druggists of this city (New Orleans) to adopt Sunday closing; for a time it promised success, but some weakened. On August 3, 1919, I inserted in the three local papers my notice of Sunday closing under the caption "A Pioneer Venture." I have lost some customers, but others have taken their place. The world is large—is my liberal view of life. Commercially, in dollars and cents, Sunday closing with me has been a success. The leaks closed on Sunday amount to quite an item, perhaps more than offsetting the profits on those days were my store open. From a personal view—I have 52 days of no trouble, draw my dividends weekly, and can have my rest and pleasure under normal human conditions. I am growing old gracefully with the "pep" of youth, plus the neighborhood respect and the respect of other commercial people. I hear "Ames is high," "Ames is dependable;" like the magnet it attracts a class that affords me a good living, on the minimum of effort and investment.

WHAT SHOULD BE THE ATTITUDE OF THE PHARMACIST TOWARD THE VARIOUS CULTS, 'ISMS, 'PRACTICS, 'PATHIES, AND HEALERS?*

BY W. F. GIDLEY.

One of the leading pharmacists of the country said to me a few weeks ago, "Both the profession and business of pharmacy know very little about cults and 'isms and have done very little reading on these matters. It is time for them to do so now."

The pharmaceutical profession has apparently viewed these aberrations in dignified silence and charitable toleration—because, as we now fear, of ignorance as to their true character.

Our profession stands to-day shoulder to shoulder with others in combating the menace of the general sale of narcotic drugs, of intoxicating liquors, abortifacients, etc. We assist in securing action to control the itinerant drug vendor. There are many reasons why our profession should take an aggressive, militant attitude toward the various non-medical "healing" cults. Moral reasons alone are sufficient for the severest indictment against them.

For some years past the writer has taken occasion to discuss with senior classes in the School of Pharmacy the 'isms, 'pathies, sects, cults, and healers, pointing out some of the glaring expositions of the alleged efficiency of osteopathy, chiropractic, so-called Christian Science, spinology, neuropathy, naturopathy, spondylotherapy, naprapathy, spiritualistic "healing," cosmetic "therapy,"

* Read before Section on Education and Legislation A. Ph. A., New Orleans meeting, 1921. It was voted that the paper be printed. The recommendation of the author relating to action of the Association was modified, making it read, "pharmacists should enlighten the public relative to such practices and use every reasonable means in exposing their methods."

and what not. Of these things I have read sufficient that, for the purposes of this paper, I can use quotes for the more delicate places—quotes from men of highest standing and national reputation.

The modern homeopath "practices scientific medicine" and ought to admit it. The so-called basic therapeutic principle back of homeopathy is defunct. I shall have more to say of this later.

As for the other 'pathies, 'isms, 'practics, cults, healers, etc., I shall, from here on, refer to such frauds as cults. Their success depends upon the fact that the human race is always ready to make an ass of itself whenever it has a chance. We have but to glance back into history to learn of the scores upon scores of such cults that have foisted themselves upon the credulous only to be dropped shortly in response to the innate desire of people for something new.

"Homeopathy is gasping, osteopathy is at its zenith," sobbing about the encroachments of the poorly educated chiropractor who, while now much in the limelight, will have declined in a very few years to where osteopathy is now.

The spondylopathist, neuropathist, naprapathist and spinologist are chiropractors extraordinary. Each of these groups is able to keep itself before the public by explaining to the people how little the members of the other groups really know.

In a piece of "chiro" literature we find this: "The osteopath manipulates, pulls, stretches, yanks and jerks, using up thirty to sixty minutes, and the results are uncertain. The chiropractor makes a spontaneous thrust requiring thirty seconds or less, with immediate results." Financial, presumably. The naprapathist is found railing at his forerunners thus: "Naprapathy is essentially different from osteopathy and chiropractic. It is no more like massage than diamond is to glass. Bony subluxations do not exist as such and bony adjustments are not made by the naprapathist."

"No principle of any cult has ever been corroborated by any scientific work."

"No originator of a 'pathy, 'ism or sect has been a man of eminent attainment or recognized scientific ability," except in the eyes of his followers. Nor has any member of these cults functioned as a public benefactor. They are "profiteers dealing in the good faith and confidence of the public." Jenner, Pasteur, Koch, Billings, Harvey, Osler, etc., were not cultists.

"Every 'pathy, 'ism, cult or sect claiming the ability to cure disease is based primarily on what one *single* individual has thought would be a nice way to treat every disease;" in marked contrast to the scientific school, which is based on the summation of an immense body of facts compiled for many years and demonstrated in the laboratory and clinic by thousands of collaborators, physicists, bacteriologists, chemists, biologists, etc. Every 'ism, 'pathy, cult or sect exhibits a profound ignorance of the fundamentals. Some cultists assert that the use of drugs is an outworn superstition. They assign as the cause of disease some "pressure on the spinal nerve roots as they find egress through the intervertebral foraminae, due to an inadvertent displacement of the segments of the spinal column."

Challenge and reward have been offered (but neither accepted) for anyone, cultist or otherwise, to demonstrate that it is possible to move one vertebra, excluding the coccyx, by the usual "adjustment methods," in an intact spinal column,

in any direction any appreciable distance from normal alignment. Yet tonsilitis is "treated" by "adjusting spinal subluxations." What an astounding thing it is that in an epidemic of tonsilitis so many people should "catch" twisted necks from their neighbors.

The founder of osteopathy after what he claimed to be "twenty-five years of close observation and experimenting" took the simple ground that there were "no such diseases as typhoid fever, diphtheria, typhus, gout, nettle-rash or croup. These are only effects. The cause can be found and does exist, to anyone born above the condition of an idiot, in the limited or excited action of the nerves which control the fluids of part or whole of the body." Continuing he says, "All diseases are nerve effects, the cause being a partial or complete failure of the nerves to properly conduct the fluids of life."

To anyone who understands the meaning of words and is at all familiar with the discoveries of science the above quotation is simply a diarrhoea of nonsense—that nonsense which has become the heritage of the chiropractor and his off-shoots.

The founder of osteopathy taught that "smallpox could be prevented by inhaling tincture of cantharides, or by raising a blister with fly-plaster." And now a modest chiro teacher states that "osteopathy succeeded medicine and chiropractic succeeded osteopathy." Certain it is that the newer cult has improved on the older one in boldness of camouflage and picturesqueness of advertising.

Any cult based on the theory of applying one form of treatment to everything that comes along is Simon-pure quackery. Graduates of such so-called "schools" of healing are not qualified to carry out the technical, precisive, chemical, physical, microscopic and analytical procedure of diagnosis.[1] They not only cannot separate the puzzles that occur in practice—they do not know of them. Their cleverness is attributable in large part to the same thing that makes the application of the madstone in cases of dog bite seem so efficacious—the dog wasn't mad.

A grain of truth is not infrequently at the bottom of, but not peculiar to a cult, but it is submerged by volumes of untruth.

Psychotherapy or suggestion therapy is frequently employed by the scientific practitioner; as is also Swedish massage, rubbing, hydrotherapy, etc. These methods have certain restricted uses but their exclusive use for all diseases can be justified only by the desire on the part of their exploiters to supply the humbug which the public evidently desires.

Patent medicine fakers have for years used psycho-suggestion methods of creating symptoms in people by their advertising methods, thus producing a demand for their so-called remedies. How easy the 'practor has found it to get 'em coming and keep 'em coming by similar methods—free consultation, advertisements, etc. All's fish that comes to their nets.

If one studies the published definitions of these drugless cults one sees at once some of the many ways employed for evading issues while exploiting their schemes. I have already stated some of the views of the founders of osteopathy. One definition reads: "Osteopathy is a system of treatment directed to the mechanical correction of assumed osseous displacement or muscular imbalance of the muscles moving a joint with the consequent repression of abnormal reflexes and the restoration of normal circulation." Clear as mud.

[1] One "chiro" school boasts of a sixteen-year-old graduate.

Chiropractic treatment is based on spinal adjustment and hopeless ignorance. Like some older cults, chiropractic, "the greatest science of the twentieth century," has various explanations of its origin. One is that a certain "magnetic healer" "treated" a negro janitor who was deaf and also had a "knot on his back." The knot disappeared and also the deafness. One is reminded of the case of the Hollander who "went into Italy, where he acquired the language and also got intestinal worms. When the worms were expelled the new tongue was found to have gone with them."

Among the chiropractic "philosophical" gems we find the statement that "life exists separate and distinct from the body;" and "the brain generates this vital force as a dynamo generates the electric current." This seemingly gives scientific foundation for the acquisition "You got your wires crossed."

In the *American Druggist*, Sept. 1920, can be found this bit of illumination: "The profession knows what 'chiropractics' are, but 'chiropractic'—that has been a mystery. It remained for the senate and general assembly of the State of New Jersey to elucidate. An Act to Regulate the Practice of Chiropractic recently signed by the Governor of New Jersey gives a palpitating world this vital information. Here is the opening paragraph of the act:

" 'Definition of chiropractic: The term chiropractic when used in this act shall be construed to mean and be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death, the science of the cause of disease and art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other by hand, thus correcting all subluxations of the articulations of the spinal column, for the purpose of permitting the recreation of all normal cyclic currents through nerves that were formerly not permitted to be transmitted, through impingement, but have assumed their normal size and capacity for conduction as they emanate through the intervertebral foramina—the expressions of which were formerly excessive or partially lacking—named disease.'

"Lucidity itself: The New Jersey Legislature said, 'Let there be light on chiropractic'—and behold, it became the 'art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities.' Simplicity to the *n*th power. Bring on your Einstein theory—the New Jersey solons may oblige with a snappy definition."

Homeopathy is or was a system of treatment obsessed with the idea that certain drugs, causing certain symptoms in a healthy individual, will relieve those symptoms when occurring as manifestations of disease, and the doctrine includes the theory that the potency of the drug is greatly increased by repeated trituration, or diluting and shaking.

Homeopathy dates back to the days when "schools" or "cults" of medicine were common and were valiantly upheld by their adherents or denounced by the opponents, as the case might be. This, however, was when diagnosis was in its infancy, and before the days of clear demonstration of bacteria and the lower forms of life as causes of disease. Homeopathy now mainly differs in the manner of

its employment of Materia Medica. In 1915 there were nine homeopathic schools of medicine in this country, now only five.

Naprapathy, the newest science, teaches that all diseases are due to disorders of the ligaments and connecting tissue along the spinal cord. No bony "subluxations" to strain over. Nothing softer—except the "science" we will next discuss.

We have spoken of the innate desire of people for something new. Even a casual observer of the maelstrom of schools of healing and religious cults can see that any one without scientific knowledge whatever can initiate a school of healing with an astonishing following, and that anyone without depth of philosophy or acquaintance with logic can launch a new religion with a multitude of faithful adherents. When the desires for a new religion and a new healing cult are appeased by exhibition in combined form the result is twice as gratifying to the follower as well as to the perpetrator. Hence the ascendancy of so-called Christian Science. It has in common with other 'pathies and 'isms such features as "grossly extravagant claims of ability to cure sick men; ignorance of diagnostic methods with activities limited to treating by one method of healing, namely, psychotherapy in a crude form; and printed and verbal exploitations." No drugs.

So-called Christian Science originally denied the existence of disease as firmly as its dupes now contend that they did not deny it. Now they admit its existence, but call it "error emanating from the carnal mind," and claim the exclusive rights to ordain practitioners qualified to administer in a therapeutic way the healing properties of the Divine Being for a stipulated fee.

The saddest spectacle is to witness a Christian Science parent ignoring sickness in the child who itself is unable either to find solace in the mantle of insufficient faith, or to sneak off to a physician.

Mark Twain once said, in speaking of Christian Science, "there is too little sanity in the affairs of men, and it seems rather like flattery to intimate that they are capable of it."

Volumes could be written to the discredit of so-called Christian Science and the political machinations of this cult should be met with public opposition. Particularly in the light of their attempts at places to abolish health inspection in public schools. Fortunately the majority of intelligent parents still desire to have their children protected, to such extent as scientific care can accomplish it.

Can it be that scientific professions such as pharmacy and medicine are not strong enough to combat a prostitution of the intellect founded by one so weak? The answer is, No—but publicity is required to accomplish it.

We *know* of the power of drugs rightly dispensed and administered to cure disease. Why should we sit mum while these cultists by gross misstatements, lurid advertisements, false claims, and reduced rates, sell the people their bunk? They draw the unfortunates to their offices where cures are promised for incurable diseases and even worse unscientific "treatment" is given to cases which otherwise might have been saved both health and wealth.

The victims are frequently drowning men who will grasp at a straw, and the foredoomed of a fatal malady will strain his purse to engage the services of one who

will offer "hope," and the pockets of the 'pathists bulge with the fruition of playing the rôle of the straw.

These are some of the moral reasons why we should oppose them. They preach and write about the "uselessness of drug therapy," often bragging that "not a spoonful of poisonous drugs has ever passed our child's mouth."

We know a Christian Science mother who, after her husband covered with blotches was taken to a smallpox pest-house, allowed her children to play with neighbors' children and taught them to lie about themselves when their own little bodies broke out with the disease. What chance is there for scientific advancement, for better sanitary conditions, etc., when such an incubus drags on society?

In Kansas City, Mo., exists a spiritualist "healer" society called Unity. Detail your symptoms and send them two, five or ten dollars, and they will "offer" two, five or ten dollars' worth of "prayer." Their most fervent prayer probably is, "Thank God all the suckers are not dead."

As pharmacists we should enlighten the public relative to such practices and use every reasonable means in exposing their methods.

Was it by scientific medicine and scientific sanitation, or was it by unscientific humbug, that Goethals was enabled to free the Panama Canal Zone of yellow fever? Was it by the use of drugs or by spinal adjustments, faith "healing," etc., that typhoid fever was eliminated from our great army camps?

When the chill of malaria fever approaches what should the patient have—a spinal adjustment, a prayer, or a dose of quinine? We know and we believe the public ought to have the whole truth.

HISTORICAL FRAGMENTS.

BY EDWARD KREMERS.

17. Some Medico-Pharmaceutical Advertisements of the 17th Century.*

Any newspaper of 1664, whatever its name or character, will appeal to the newspaper-ridden world of to-day. When paper was made by hand, our modern sheets were out of the question. With not overmuch exaggeration, it might almost be said that a single copy of a metropolitan Sunday paper contains as much purified cellulose as did an entire edition of a diminutive newspaper two hundred and fifty years ago. The contrast in size constitutes possibly the greatest difference when compared with our modern daily. So far as the issue under consideration is concerned we find the same attempt at the suppression of free speech, the same accounts of wars and petty quarrels the world over that we have come to regard as characteristic of our own time. Even the secret nostrum advertisement is not wanting.

England had grown tired of her Cromwellian "democracy" and had invited back her king and with him the reaction that was of necessity coupled with the restoration of the Stuarts. In her commercial exploitation of inferior or less de-

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*For having his attention directed to these advertisements, the writer is indebted to Mr. Oswald Garrison Villard, editor of *The Nation*, in whose collection the original is to be found and who kindly gave the writer permission to have photostatic copies prepared.

veloped nations, she came into conflict not only with these peoples (see news from Tangiers) but with other nations that were trying to play the same game (see news from Holland and the East). The Turk had invaded "Germany," that is, a part of what was but recently the Austro-Hungarian Empire, and the readers of *The Intelligencer* were apparently as ready to believe stories about the Turk, no matter how absurd the narrative, as our own people were ready only a few years ago to swallow every untruth told about the "Hun." How little the world has changed, after all, since the Pilgrims came to this country to escape persecution in England and then persecuted the religious minorities in New England, burned witches until no one was safe, and destroyed the pagan Indian for the greater glory of God.

However, this is not the occasion to indulge in general historical comparisons, not even is it to serve as an excuse to write a story about a newspaper in order to get even with newspaper stories. As already intimated, the excuse for calling attention to the *Intelligencer* for May 16, 1664, lies in some of its minor features, if smaller size and a different style of type are any indication of lesser importance, namely, to some of its advertisements.

This much must be said for the editor and publisher of *The Intelligencer*, that he prominently labeled his "Advertisements" as such. The first group of four ads on page 3 are "Advertisements of Books." The second of these pertains to John French's "The Art of Distillation." The second group of five ads on page 5 is miscellaneous in character and contains one of the kind that we now commonly designate patent medicine ads. This group includes "fresh *Epsum-Water*" and "An excellent and approved powder," the latter to be had at the shop of a book-seller.

A somewhat closer examination of these advertisements may not be altogether devoid of interest, especially in our country at a time when a reference to "London Distiller" might tempt others than pharmacists to purchase a copy of the book if it were in the market to-day. Such a purchaser, however, might be sorely disappointed in the greater part of the book and, upon a second glance at the advertising paragraphs conclude that, after all, he was more interested in "Epsom-Ale" and "Spruce-Beer."[1]

Allusion has already been made to the rivalries between England and Holland in the East Indies. To appreciate fully this copy of *The Intelligencer* one must read, at the same time, Pepys' "Diary" written during the same period. The same motive for sea supremacy that caused England to stage the World War, caused her in 1663 to support a debauched king to get ready for a war against Holland. It was the discovery of the West Indies by Columbus, and the almost equally important discovery of an all-water route to the East Indies by Vasco da Gama in 1498, that caused spices, for some of which Europeans had formerly paid their weight in silver and gold, to be sold cheap enough to be used as medicaments by others than royalty and the nobility. Indeed, the spicers and apothecaries of Paris for a time constituted one guild, so closely were they related commercially. While Galenist and Paracelsist quarreled over the use of mineral medicaments, the new pharmaceutical chemist not only learned to prepare chemical remedies, but distilled every old and new spice that came from the two Indies. Indeed, he went so far in his

[1] "At the *Angel* and *Sun* in the *Strand* near *Strand* Bridge is to be sold every day fresh *Epsum-Water, Barnet-Water, and Tunbridge-Water; Epsum-Ale* and *Spruce-Beer.*"

craze to distil everything, that he placed precious stones into his retorts and alembics and distilled them with either water or wine in order to extract their quintessence. Hence treatises on distillation constituted the "literature on new remedies" of the seventeenth century, though, in our shortsightedness, we imagine that we have a monopoly on things new in the materia medica. For this reason "The Art of Distillation; or a Treatise of the Chocycest Spagyricall Preparations, Experiments, and Curiosities, performed by way of Distillation," in Six Books: by John French, Doctor in Physique. To which is added in this Third Impression *Calcination*, and *Sublimation* in Two Books; as also the " London Distiller" was advertised in the issue of *The Intelligencer* under consideration, and no doubt, was a popular book. It was first published in 1651; a second edition in 1653; the third edition—the one here advertised—in 1664 and a fourth edition in 1667.

If one recalls that the first edition of French's "Art of Distillation" appeared scarcely a generation after the first edition of the London Pharmacopoeia had made its appearance in 1618 and that copies of this treatise are so scarce because the college was ashamed of its own work and had the first edition suppressed on account of the amount of superstition and vulgar "science" that had crept into it, we shall not be surprised at the crudities of the "Art of Distillation."

On the continent there had appeared a number of excellent treatises on distillation. Such were the books of Braunschweig, Ryff and others.[1] A disciple of Paracelsus, our English author had copied not a little of the bombast of his master. Like him he was an alchemist as well as an iatrochemist. Hence the contrast between the style of John French, "Dr. in Physick," and his contemporary, Robert Boyle, the "sceptical chymist," is noteworthy. Whereas Boyle wrote for the scholar, French wrote for the dilettante in science, or more correctly in this instance, for the one who dabbled in truth as well as in experiment. Curious experiments as well as money-making operations are described and if the "philosopher" is disappointed he must not blame the author but himself for having failed in his laboratory technique *Secundum Artem Alchymistae*. Hence the advertisement of this book alongside with "An Excellent and Approved Powder" is what one might expect, both advertisements appealing to the credulous. This readily explains the author's desire to produce a less expensive book than the German treatises on distillation.

It would be unreasonable to expect the intelligence of the people to rise higher than its source. Hence the reference to the "patent medicine"[2] advertisements and that of the alchemistic treatise on "The art of distillation" should be supplemented by one emanating from Whitehall and dated May 14. We have reference to the last paragraph of this newspaper of 1664:

"His Sacred Majesty having Declared it to be his Royal Will and Purpose to continue the Healing of his People for the Evil, during this Month of *May;* and then to give over till *Michaelmas* next, I am commanded to give Notice thereof, that the People may not come up to the Town in the *Interim*, and loose their Labour.

In Pepys' "Diary" we have the record of an eye witness of this species of royal quackery. Thus on June 23, 1660, Pepys recorded the following item:

[1] Comp. "Sixteenth Century Treatises on Distillation," *Ph. Rev.*, 20, p. 56.

[2] For a concise statement concerning English patents, more particularly with reference to their application to medicines, see Wootton, "Chronicles of Pharmacy," Vol. II, p. 161.

"To my Lord's lodgings. . . and then staid to see the King touch people for the King's evil. But he did not come at all, it rained so; and the poor people were forced to stand all the morning in the rain in the garden. Afterward he touched them in the Banqueting-house." Again April 13 of the following year: "To Whitehall by water. . . I went to the Banquet house, and there saw the King heale the first time that I ever saw him do it; which he did with great gravity, and it seemed to me to be an ugly office and a simple one." The editor of the edition reprinted in "Everymans Library" devotes one of his longest footnotes to this peculiar practice.

The King's evil is now regarded by some as a localized tuberculosis; at least so we are informed by a modern commentator. It is claimed that the power of curing this dread disease was of English growth "commencing with Edward the Confessor, and descending only to such foreign sovereigns as could show an alliance with the royal family of England. But the kings of France claimed the gift, and it was certainly practiced by Philip I, although he was allowed to have lost the power through his immorality." "Henry VII was the first to institute a peculiar service of ceremony on the occasion of touching, and this continued until the reign of Queen Anne. 'Touch-pieces' were coined from Henry VII's reign down to the time of James II. In 1748 the nonjuring historian T. Carte lost a subsidy from the county council of London for a note in his 'History of England' to the effect that a man had been cured of the King's evil by a touch of the Pretender in 1716." Truly the remedy was regarded sacred and, in the light of the immorality of the Stuarts, one wonders how immoral a divine English king might become before his touch ceased to be effective.

Contrast with this custom the practice of the irregular Puritanic healer in New England as described in "Receipts to cure various disorders" written "by some London physician" in 1643 "for my worthy friend Mr. Winthrop."[1]

"For the Kings evill. Take 2 Toades & let them fast 2 or 3 dayes that they may spewe out their Earth, then boyle them in a pint of Oyle in a newe pipkin covered so long, till they be brought to a black Coale broken in peeces, presse out the Oyle, from the said Toades, reserve a 4th part, to the other three parts add half a pound of yellow wax, shavd small. Let the wax melt in the Oyle in wch dippe linnen cloathes, that they may be well covered cerecloathes. with the 4th part of the Oyle left, annoynt all the places infected, & then strewe of my powder of Toades (mentioned before for an Antidot agaynst the Plague) upon the sores of swellings, & then put on of ye cerecloath.

"dresse the running sores once everie 24 howres, but it will serve to dresse the swellings once in 4 dayes. Everie 4th day at furthest give of ye said black powder to the partie & let them swet upon it. you may proportion the dos from 5 graynes to a dragme according to the strength & constitution of ye partie. If the partie be strong, it is the better that they swet everie day or everie second day.

"By this Course ther is no doubt of the cure by Gods assistance."

One may well wonder what was more acceptable to the sight of the Lord: a roué Catholic king curing by faith or a Puritan preacher frying toads in oil in the belief that the charred animal would effect a cure "by God's assistance."[2]

[1] See the account of this interesting historical document by Oliver Wendell Holmes in "Massachusetts Historical Society Proceedings," Vol. 5, p. 379.

[2] Since this Historical Fragment was written there has come to the writer's attention a copy of Bickerstaff's New England Almanac for 1776 which, among "Experienced Medicines, extracted from Authors," contains directions for the preparation of medicaments against "King's-Evil," one to be used internally, the other to be applied externally.

Of the rôle which Epsom and other waters advertised in *The Intelligencer* were playing in English social life, we get some idea from Pepys. During his first visit to Epsom, July 25 and 26, 1662, he is surprised to see so many "citizens," as opposed to those higher up in society, of whom he had not known "that they had ever had it in their heads or purses to go down thither." While for his annual purge he selects a Sunday so as not to allow his "medicine" to interfere with his business, he by no means objects to a glass or more *en passent*. Thus under date of July 11, 1663, he records taking the coach to Holvorne and thence by horse to Barnett. Having bade his wife good-bye after dinner, he "and Will to see the Wells half a mile off, and then drank three glasses, and walked, and come back and drunk two more." He concludes his day's record with "not being very well, I betimes to bed."

Not everyone could afford to go to Epsom or even less fashionable "wells," hence the waters were brought to the people. This explains the advertisement. An interesting historical account of how the "waters," artificial as well as natural, were exploited has recently appeared from the pen of Wm. Kirkby.[1]

It would not do to omit from this cursory account the exact wording of the advertisement which is responsible for having this copy of *The Intelligencer* brought to the attention of the writer, namely, that of "An Excellent and Approved Powder, for the Removing or Preventing of the Falling-Sickness; being also of singular Virtue against the Megrim, Swimmings in the Head, all Fainting, and Convulsion Fits; very good likewise against Worms. Is to be had at the House of *H. Breme* at the *Gun* in *Ivy-Lane*, Bookseller."

While comments on the advertisement itself seem quite unnecessary, it should be pointed out that both the "Excellent and Approved Powder" as well as the "Epsum-Water" are not offered for sale by apothecaries or druggists but that the "Approved Powder" may be had at a "bookseller" and the "Epsum-Water," etc., at the "Angel and Sun," presumably an inn.

A PHARMACEUTICAL EXAMINATION IN 1697.*

BY B. E. HOCKERT.

During a visit to Sweden in 1920 I secured a pamphlet, by Apothecary Axel Kockum, relating to the first pharmaceutical examinations in Sweden before the Royal Collegium Medicum (Board of Health). Before the Collegium Medicum was instituted by King Charles XI, in 1688, no examinations or stated requirements were demanded for starting an apothecary shop. But in the instruction given to the Collegium Medicum the King prescribed: "The old way, that the local magistrates give license to open and conduct an apothecary shop to whomever they consider competent, is wrong, and after this such licenses shall be issued by the King and only to persons who have been examined by our Collegium Medicum. The Collegium shall then put such questions to the persons called for examinations as will show their knowledge of medical simplicia and their preparations in Ga-

[1] *Pharm. Journ.*, 106, p. 386.

* Read before Section on Historical Pharmacy, New Orleans meeting, 1921. For discussion see Minutes, JOUR. A. PH. A., for December, p. 966.

lenical and Spagyrical Medicament and concerning the mixing of medical remedies. They must show to the satisfaction of Collegium Medicum that they know the processes that are needed of an apothecary in his daily business and practice."

The first examination was conducted in 1692, but the questions are not in existence. Another, probably the second, took place five years later, in 1697, and I shall here give the questions and the answers to such of them as are of interest. The examination took place on the 12th of February before the whole Collegium Medicum and the examiners were Dr. Micander and Apothecary Strobel. The man examined was Gustaf Treutinger.

Question.—What are the main things an apothecary must know? Answer.—To know simplicia and to understand how to prepare them.

Q.—In how many parts are simplicia divided? A.—In three parts: Derived from the animal, vegetable and mineral kingdom.

Q.—Which are the minerals used in medicine? A.—(I give English names.) Copper acetate, Copper acetate, crude; Asbestos; Alum; Antimony, crude; Silver, leaves; Arsenic, white; Arsenic, yellow; Auripigment; Gold, leaves; Bolus; Borax; White Lead; Zinc sulphate, crude; Iron oxide; Calamine; Lead oxide; Sulphur; Red Lead; Zinc oxide; Sal Ammoniacum; Rock salt; Saltpetre; Talcum; Copper sulphate; Iron sulphate; Zinc sulphate, purified; Sulphur pyrites; Mercury; Vermillion.

Q.—What is Cathecis? A.—It seems to be a dried juice.

Q.—What precious stones are used as medicine? A.—Garnet, sapphire, emerald, chalcedony and bloodstone.

Q.—What does Emerald look like? A.—Green.

Q.—What different kinds of Vermillion are there? A.—Native, crude and antimon. (The last is so named because it was obtained as a by-product in making antimonium chloride.)

Q.—What is crude Vermillion made from? A.—From mercury and sulphur.

Q.—What does Bezoar stone look like and how is it tested? A.—The best is light green or brownish green. It comes in pieces of the size of a large bean. If pure it gives a tincture with Spiritus Nitri (fuming nitric acid).

Q.—What drugs belong to the vegetable kingdom? A.—Herbs, flowers, leaves, roots, fruits, seeds, woods, barks and aromatics.

Q.—Can cloves be adulterated, and if so, how? A.—Yes, by removing the oil in them by distillation.

Q.—What is the difference between Bryonia, Jalappa and roots of the Myrobalanum species? This question was not answered.

Q.—What does Costus look like and what different kinds are there? A.—It is a bark with hair and has a sharp taste. There are three kinds, namely, Arabic, sweet and bitter.

Q.—What is the difference between *Costum amarum* and *Costum dulcis?* This question was not answered.

Q.—What is the difference between *Cassia lignea* and the genuine cinnamon? A.—Both have an aromatic taste, but genuine cinnamon comes in small round tubes, while *Cassia lignea* comes in big flakes.

Q.—What does Cinchona bark look like? A.—It is a brown, coarse, fibrous bark with an astringent taste.

Q.—What is Amara Dulcis? A.—It is bittersweet or *Solanum dulcamara*.

Q.—Which are the Herbes Emollientes and the Herbes Capillaris? A.—The Herbes Emollientes are five: Marshmallow, Violet, Mallow, Mercury Herb and Parieteria. The Herbes Capillaris are also five: Iceland Moss, Rue, Rye, Hair Cap Moss.

Q.—What is the difference between Acantha and Branca Minor? A.—None, as they are two names for the same drug.

Q.—What is Asphalathus and Asphaltum? A.—Asphalathus is a wood, while Asphaltum is a gum.

The records state that there was a lengthy discussion between Apothecary Strobel and Provisor Treutinger concerning adulteration of drugs, especially Cinnamon and Amber. Here it seems, the examination in Materia Medica ended. Doctor Micander then asked the candidate to tell what the following names and terms used in medicine and pharmacy signified:

Collyrium—anything that is used for the eyes.
Eubrinum—anything used in the nose.
Cucupha—a cap of linnen or silk filled with spices and drugs, used as a cephalic.
Matricum, Pelican—Distilling apparatuses of glass.

Spradrapus—Linen saturated with plaster.
Hermetici sigillare—The process to close a bottle by melting the glass.
Amalgare—Process of heating a metal or mineral so that it could be powdered.
Cohobare—Extracting one or more drugs several times with the same menstruum.

The record says that the answers were satisfactory but does not give any of them. The definitions given above are from a Pharmacopoeia then in use in Sweden.

Q.—How would you make Mercurius Albus? A.—By dissolving mercury in Aqua Fortis (nitric acid), precipitate it with sodium chloride, collect, wash and dry the precipitate.

Q.—How is Murcurius Dulcis made, and what is the test for it? A.—By sublimation. If it affects gold, it is impure.

Q.—How is Butyrum Antimonii made? A.—By distilling a mixture of chloride of mercury and antimony sulphide.

Q.—How is Mercurius Vitae made? A.—By adding water to Butyrum Antimony, wash and collect the precipitate.

Q.—How is Tartarum Vitriolatum made? A.—It is made from Oleum Tartari per deliquium (concentrated solution of potassium carbonate) by adding Spiritus Vitrioli rectificatus (purified sulphuric acid) in small quantities until it stops effervescing. Then add a little more of the Spiritus Vitrioli. At last evaporate to dryness.

Q.—How can plaster be made from Unguentum Lithargyri? A.—By boiling.

Q.—How much oil is required to make plaster from Lapis Calaminaris or Lithargyrum? A.—More or less, depending on how long I boil it. For Lithargyrum five parts of oil and less for Lapis Calaminaris is what I generally have used.

Q.—How is Emplastrum Diachylon Simplex made? A.—Boil the mucilage and the oil together, then add Lithargyrum but in small quantities.

Q.—How are gums purified with vinegar? A.—Rub the gum and vinegar in a mortar until very fine, then strain and evaporate.

Q.—What is the difference between Extractum Jalappe and Resina Jalappe? A.—Extract is made by evaporating the tincture, Resina by precipitating it with water.

Q.—How do you mix almond oil, water and spermaceti? A.—By heating them and rubbing till cold.

Q.—How can you powder camphor? A.—By rubbing almond oil on the mortar and pestle.

Q.—How is Resina Storacis prepared? A.—By boiling with water or wine, straining and evaporating.

Q.—How is Crocus Metallorum made? A.—By burning equal parts salpeter and antimony sulphide in an iron crucible.

Q.—How is Antimonium Diaphoreticum made? A.—As the last, but using three parts salpeter.

Q.—How can spiritus be made by fermentation? A.—By macerating the drug with water and yeast, and distilling of the spiritus.

This was the last question on the records. It seemed as if the Collegium Medicum was not fully satisfied with Treutinger's answers, as he received his "attestatum" (certificate) only on the condition that he for some time continue his studies in the pharmaceutical art at the drug stores in Stockholm by going over simplicia and look on these preparations, "so that Collegium may have more honor of its approbatur."

The examination was conducted in three languages, Swedish, German and Latin, and the records were kept in all three languages.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

[EDITOR'S NOTE.—The editor is convinced that one of the weakest points in our present-day pharmaceutical training is the lack of proper library facilities and the lack of knowledge as to how to build and use a library. With this in mind he has asked two men of unusual ability and experience to discuss these important subjects. These men are Dr. H. V. Arny of New York and Dr. Edward Kremers of Wisconsin.

RUFUS A. LYMAN, Chairman and Conference Editor.]

THE LIBRARY OF THE COLLEGE OF PHARMACY.

H. V. ARNY.*

It is an axiom that what we have at our very doors we count of little worth and a thing is appreciated directly in proportion to the difficulty in getting it.

If this is so, the writer may be pardoned in bringing to the attention of the alumni how great a mental treasure-house the college library is and what great benefit each of us can secure by using it; for to the writer, whose library facilities have, in the past, been more or less limited, the free use of such a splendid collection of books and journals as the library affords has been a real joy.

Many have been the times during the past three years that he has "called blessed" the thoughtful, painstaking and generous men of the past eighty years who have made the college library what it is, and as the present librarian, he feels he can best pay his debt to past librarians and other book-loving friends of the college, by calling attention at this time to what the library can do for every pharmaceutical worker around New York.

It is not his purpose to detail all the books in the library catalogue, nor will he say much of the fine lot of herbals, dispensatories and other medical books of the sixteenth and seventeenth centuries which our library possesses. These will be worthy of a later paper, especially after the directions of the trustees of the college, to properly exhibit these in suitable cases, will have been carried out. What is purposed to do at this time is to merely enumerate those books that the librarian would recommend to one seeking information on a special subject as the Source Books, not merely because written with authority, but chiefly because in such books the best references to the literature on the subject are given; in short, those books which give the most complete bibliographies of the subjects taken up.

As to the use of our library, suppose our inquirer desires information on some pharmaceutical subject; of course we have the dispensatories, the best known textooks on pharmacy, Hager's classic work, practically every pharmacopoeia of the modern world, and last but not least that great work, "Real-Enzyclopaedie der Gesamten Pharmazie." If these do not furnish the information, we turn to the 60 volumes of the PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION or to Beckurt's *Jahresbericht der Pharmacie*, of which we have the entire 72 volumes. If the original article is desired, the inquirer can consult practically every American pharmaceutical journal and those mostly in complete sets, and in addition, two of the leading English journals, three German and one French periodical. It would

* The contribution by Dr. H. V. Arny was printed in the *New York Journal of Pharmacy*, January 1914, under the title of "Our College Library and How to Use It."

be well if we could have the leading drug journal of each of the other European countries and contributions in that direction would be much appreciated.

If the searcher is after a botanical subject, our library is just as great a pleasure, for not only can one consult the modern botanical literature, but one can delve into quaint old herbals. The source book of pharmaceutical botany is Tschirch's "Handbuch der Pharmakognosie," which represents twenty years of labor on the part of its distinguished author and which is still coming from the press. Its peculiar value comes from its excellent bibliography and many of its references can be verified from the three botanical journals now on our shelves and these in nearly complete form. The yearly progress in botany is reflected in the Just's "Botanischer Jahresbericht," while the library has a large number of books on the drug and commercial botanical products of special countries, such as Watts' "Commercial Products of India" and Simmond's "Tropical Agriculture." Likewise, we have the leading books describing the flora of each country, including such monumental works as "Index Kewensis" and Engler & Prantl's "Die Natürlichen Pflanzenfamilien." In this connection, only recently a gentleman visited the library seeking aid in translating an Arabic medical work of some six hundred years ago and we were able to place in his hands Bossier's "Flora Orientalis," which gave a list of the plants of the Orient with their titles in Arabic, Greek and Latin. One notable omission from our botanical books is one that should soon be supplied—that splendid work, "North American Flora" (published by the New York Botanical Garden)—which we hope we will soon receive either by donation or by purchase.

In chemical books, our library is uncommonly rich and that thanks to the proper selection during the past few decades of that type of book peculiarly needed in a pharmaceutical library. A marked advantage that can be found in the classical books on chemistry is that phase as yet not sufficiently shown in books on pharmacy—sufficiently voluminous bibliographies. A book on science to be of the utmost value should not only present succinct facts, but should also refer the reader to volume and page of the journal where the original communication is found. Of course, such information is not usually required by the casual reader, but it need not necessarily enlarge the book beyond comfortable limits, and when there, is of utmost value to those readers who wish to go deeply into the subject. And pharmaceutical books—even such classics as the "Real-Enzyclopaedie" and the dispensatories—are considerably behind the average authoritative book on chemistry or on pharmacognosy in the matter of adequate and systematic bibliography. Notable among the American works furnishing fine bibliographies are the Bulletins of the Lloyd library, of which No. 18 on the history of official drugs is a masterpiece of bibliographical research.

Discussion of the chemical books of our library will therefore consist largely in stating those source books from which the inquirer should start his hunt. Without question, the master books on chemistry from the standpoint of proper bibliography are "Gmelin-Kraut-Friedheim," which gives practically every reference in inorganic chemistry that is worth while, and "Beilstein" which does the same service to organic chemistry. Our library also has both Dammar and Abegg who discuss inorganic chemistry, though not quite as fully as Gmelin-Kraut; and in English we have Roscoe & Schorlemmer, Watts' Dictionary and Thorpe's Dic-

tionary, although not in the latest edition. Moreover, the bibliographies of these English books leave much to be desired.

All these works are to chemistry what the Century Dictionary is to the English language, and like the Century these books are primarily works of general reference and for ultimate details the searcher is supposed to consult the special books on the several branches of chemistry. In these, our library is particularly good and the ones mentioned below are those which appeal not merely because of excellency of contents but also because of their fine bibliographies.

Thus we have Gildermeister-Hoffmann "Die Aetherische Oele," Pictet-Biddle "The Vegetable Alkaloids," Van Rijn "Die Glykoside," Winterstein & Trier "Die Alkaloide," Mann "Die Moderne Parfumerie," such works of technological chemistry as Bolley and also Thorpe, the best books on analytical chemistry (including, of course, Fresenius), Abderhalden's and also Hoppe-Seyler's classic works on physiological chemistry and Cohnheim's "Chemie der Eiweisskörper." And what is still more satisfactory is that most of the original articles referred to in the books just mentioned can be consulted in the journals on our shelves. We have seven English and American journals, including the publications of the American and of the English Chemical Societies. We have 10 German journals, including almost complete files of *Liebig's Annalen* and the "Berichte" of the German Chemical Society, and we have partial files of the *Compte rendu* of the French Academy and the *Journal de Pharmacie et Chemie*.

Mention has already been made of how indispensable to the library worker are those pharmaceutical publications which give in abstract all of the published work of the year. This type of publication is particularly well furnished in chemistry, and in our library we have *Chemical Abstracts* and *Chemisches Centralblatt* as well as practically complete files of Liebig-Kopp "Jahresbericht und die Fortschritte der Chemie" and Wagner-Fischer's "Jahresbericht der Chemischen Technologie."

Let us close by giving a concrete example of what we can do with our library. Choosing at random, suppose we were looking for some information regarding Valerian and its preparations. Turning to Tschirch's "Handbuch der Pharmakognosie" we find 14 pages (Part II, pp. 511–525) given to this subject and in his bibliography there are ten references (to books and journals) to the etymology; 15 to botanical origin; 7 to the culture ; 17 to the anatomy; 58 to the chemistry and 7 to the adulteration and uses of the drug. As to the pharmacy of Valerian, we find in the PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 2 references to the fluidextract, 1 to the tincture, 3 to valerianic acid, 4 to ammonium valerianate. Assuming it is valeric acid and valerates regarding which we wish information, we turn to "Beilstein" and we find reference to the thirty-five papers on isovaleric acid (the pharmaceutical variety), and in order to complete the bibliography to date since the publication of Beilstein (1899), we find in Liebig-Kopp *Jahresberichte* up to 1908, forty-four references to this valerianic acid, and in the *Chemical Abstracts* of 1909 to 1912, inclusive, seven other articles on valeric acids and preparations of same. And as mentioned above, on our shelves we find a large percentage of the journals in which the original articles were published, thus giving opportunity of reading the paper in full.

The foregoing is but one of many illustrations of the richness of the college library and indicates the service it can render to those desiring information on

practically every phase of pharmacy. It is offered to every one desiring pharmaceutical information and each year its value is becoming more appreciated not only by the drug trade of Greater New York, but also by chemists and physicians of the vicinity.

EDWARD KREMERS.

A number of years ago, the writer visited one of the older colleges of pharmacy. While walking through the building, the sign "Library" attracted his attention. The guide evidently was not over-anxious to show this room to the visitor but was about to pass by. However, the writer's interest would not be denied, so we entered. Of books, none were to be seen. The entire equipment consisted of a table, some chairs, and, if the writer's memory serves him correctly, several cuspidors. The visitor was informed that the students had but little or no use for a library, hence the room had been turned over to them as a smoking room.

I fear that this institution of pharmaceutical learning has not been the only one that has had little or no use for a library. The average student cares little for books other than textbooks and even these he is willing to sell as soon as he is "through with them." So long as faculties and trustees are willing to convert libraries into smoking rooms, we can scarcely blame the students. Better a few shelves with reference books in some corner of an office or balance room than a large room labeled "library" with no books in it. Here as in everything else it is the spirit that pervades the institution rather than a magnificent edifice with costly equipment. We may well rejoice when a college of pharmacy has both, but the absence of either or both need not discourage the smallest faculty from making the most of the few books in its possession.

The question naturally arises what books shall be purchased first with the small sum of money available. Not long ago the writer received a letter to this effect from a colleague in an institution not in the United States, thus showing that one of the first things he thought of was books. An institution headed by such a person will make headway in other directions.

The Pharmacopoeia has been designated the Bible of the pharmacist. The student may be expected to be in possession of the latest edition, but the college library should have a copy of each edition. If evolution is of any value whatever it is of importance in the study of pharmacy and how can you understand the latest edition of the United States Pharmacopoeia without knowing something of how it evolved out of its precursors?

Next to the U. S. Pharmacopoeia come the commentaries thereon. Most of these commentaries are not restricted to the U. S. P., but include one or several of the foreign pharmacopoeias as well. This, naturally, suggests that foreign pharmacopoeias be added as rapidly as funds will permit. Only in the course of years can these foreign series be built up. It will take even longer to secure the various editions of their commentaries.

Having made a good beginning with pharmacopoeias, the librarian will not wait until he has built up a complete collection of these, but will from the very start endeavor to secure complete sets of the three standard annual reports of special value to pharmacy. These are:

1. Report on the Progress of Pharmacy of the A. Ph. A.

2. The corresponding report of the British Pharmaceutical Conference, known as the Yearbook.

3. The "Jahresbericht" of the German Apothecaries Society.

In the study of the Pharmacopoeia these three reports are an indispensable supplement to the commentaries. The reports in turn lead to the purchase of the journals abstracted by the editors of the reports. If it requires some money to purchase the complete sets of these reports, it will require more money, but even more patience, to collect complete files of the journals. If pharmaceutical institutions of learning, in the past, had done their duty so far as the preservation of pharmaceutical journals is concerned, it would be much easier to purchase sets to-day. The very fact that in the past most of them had not sufficient money value for the antiquarian to collect them reflects the past situation.

As already intimated, the collection of series of pharmaceutical journals will require a lifetime, indeed will have to go on forever. However, here also, the librarian will not be doing his duty if he stops to do this and accomplishes little else. Continuing the line of thought first suggested, the "Digest of Comments" published by the Hygienic Laboratory at Washington should be secured. The current numbers, like many other bulletins of this government institution, can be had for the mere asking. Indeed, if the pharmacists of this country had shown a greater interest in this "Digest," it would, no doubt, have been enlarged before this and have been kept up to date. The pharmacists have not half appreciated the work of its editors and of the Laboratory Directors and the Surgeon General in this direction.

These few suggestions may indicate to the inexperienced librarian how to make a good beginning. Nothing has been said thus far about pharmaceutical texts and numerous other books on pharmacy, much less about chemistry, botany and other related sciences. In the libraries of universities these latter will be taken care of by the respective departments. The college library will have the additional task to supply its needs in these directions as well.

The only other suggestion which the writer cares to make at the present time is to humanize the library. The room devoted to library purposes need not be large or its equipment expensive. However, the room should not be a sarcophagus of that which to the student may seem dead. It should be alive with the past. If no other funds are available, the librarian may well leave a book unbound and spend the money for having a suitable picture framed. It is a splendid idea to exhibit in glass cases books, opened to some interesting cut, that are too precious to be exposed to the hands of the thoughtless students. The ingenious librarian will find numerous ways to make his room the most attractive of the college building without converting it into a smoking room.

STANDING COMMITTEES OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

President Dye of the American Conference of Pharmaceutical Faculties has appointed the following standing committees for 1921–1922:

No. 1. *On higher educational standards*—D. B. R. Johnson, *Chairman*, W. O. Richtmann, E. O. Kagy, C. E. Mollet, Robert Wilson.

No. 2. *On faculties*—W. F. Sudro, *Chairman*, H. W. Youngken, C. E. Caspari, A. H. Clark, E. F. Kelly.

No. 3. *On curriculum and teaching methods*—W. J. Teeters, *Chairman*, L. E. Sayre, E. N. Gathercoal, W. C. Anderson, William Mansfield.

No. 4. *On activities of students and alumni*—Zada M. Cooper, *Chairman*, F. J. Wulling, E. R. Serles, J. W. Sturmer, Edward Spease.

No. 5. *On uniform college bulletins*—J. A. Koch, *Chairman*, Jeannot Hostmann, Adolph Ziefle, H. C. Newton, L. C. Bird.

No. 6. *On relations of pharmacy schools and other professional schools*—L. S. Blake, *Chairman*, C. H. LaWall, W. G. Crockett, W. G. Gregory, A. F. Schlichting.

No. 7. *On relations of the colleges with the boards*—Jacob Diner, *Chairman*, H. M. Faser, C. P. Wimmer, P. F. Fachenthall, Robert Crowe.

No. 8. *On examination questions*—G. C. Diekman, *Chairman*, E. L. Newcomb, C. H. Stocking, C. W. Johnson, J. G. Beard.

No. 9. *On research*—Albert Schneider, *Chairman*, H. V. Arny, Edward Kremers, W. H. Zeigler, C. B. Jordan.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER No. 10.

(Abstract.)

WASHINGTON, D. C., March 15, 1922.

To the Members of the Council:

57. Plan of Procedure for Committee on A. Ph. A. Headquarters Building—Motion No. 41, carried.

Prof. Lyman submits the following explanation with his vote:

"I enclose my vote on Motion 51 and I wish to explain why I must oppose the plans of procedure as suggested by the Committee on A. Ph. A. Headquarters Building. I am in sympathy with all of Item 41 except Section 5. Before men will give to the building of a permanent home we must know where that home is to be. This will determine very largely what men will give. We have no money just now to deposit in some penny savings bank at a low rate of interest for some air castle, but we have a little that we might give for a home for the Association when we know where that home is to be. Furthermore, we are not going to locate the permanent home of the Association in some town because they offer us a lot or even a building free of charge. We had better pay a good round sum for a building spot in some location than to have a donation in another place that might determine the policy of the Association in the future. I think the item the committee is trying to leave in the air is the first one to settle. Therefore, I emphatically register my vote against Item 51."

58. Motion to appropriate $200 for office supplies for the Committee on A. Ph. A. Headquarters Building—Carried.

59. Motion to give Treasurer Kelly the right of access to and control of the contents of the safety deposit vault of the A. Ph. A.—Carried.

60. Nominees for Secretary of the Section on Historical Pharmacy (see Item No. 55): Clyde L. Eddy and E. H. Wisner.

61. Applicants 185 to 193 elected to active membership.

62. Election of active members: No. 194, Edwin R. Littman, 215 W. Green St., Champaign, Ill.; No. 195, John A. Palmer, Chelsea, Mich.; No. 196, Milton L. Robinson, 248 Broadway, San Diego, Calif.; No. 197, Henry Cleland, 140 West Philadelphia St., Detroit, Mich.; No. 198, Raymond Edward Dockery, 411 East Fourth St., Oil City, Pa.; No. 199, P. H. Dirstine, 701 Linden Ave., Pullman, Wash.; No. 200, Willson Ying Chiang, 1636 New Hampshire St., Lawrence, Kans.; No. 201, Sister M. Mechtildes, Mercy Hospital, Market Ave., North Canton, Ohio; No. 202, Sister Mary Vincent, 5th Ave., E., and 3rd St., Duluth, Minn.; No. 203, Jay Jacob Depuy, 307 West 51st Street, New York, N. Y.; No. 204, Anthony Di Cosola, 740 Independence Blvd., Chicago, Ill.; No. 205, Sister Marie Hortense, 1068 Belmont Ave., Youngstown, Ohio; No. 206, Perley Windsor Howard, 2826 So. Hope St., Los Angeles, Calif.; No. 207, Sister Mary Kierau, 8th and Market Sts., Galveston, Texas; No. 208, Albert B. Hall, 315 N. Capitol Ave., Box 144, Indianapolis, Ind.; No. 209, Frank Bruce Robinson, Merrill, Ore.; No. 210, Sister M. Alice, St. Elizabeth's Hospital, Brighton, Mass.; No. 211, Sister Mary Joseph, 2200 Hayes St., San Francisco, Calif.; No. 212, Arthur Frank Heboing, 13764 Maine Ave., Detroit, Mich.; No. 213, Theodore Albert Zich, 7839 Riopelle Ave., Detroit, Mich.

A. G. DUMEZ, *Secretary.*

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Conducted by H. V. Arny, Reporter on the Progress of Pharmacy, Chairman of the Committee on Research.

On these pages, each month, will be found a list of articles on pharmaceutical research; the list appearing a certain month will record articles appearing in American journals of the preceding month and articles appearing in foreign journals will be recorded as quickly as possible after the journals reach the Reporter.

All articles appearing in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK which will be issued as soon after the end of the year represented as editing and printing conditions permit. Those desiring abstracts immediately can obtain same for a fee of one dollar each by communicating with H. V. Arny, 115 West 68th St., New York, and arrangements can also be made for securing photographic reproductions of entire articles at moderate prices when such are desired.

PHARMACOPOEIAL REVISION.

Goldby, F.
Some recipes of the British Pharmaceutical Codex
Pharm. J., 108 (Feb. 25, 1922), 147

APPARATUS AND MANIPULATIONS.

Bruhns, H.
Improved burette
Chem. Ztg.; through *Pharm. Zent.*, 63 (Feb. 9, 1922), 82
Hartmann, W.
Simple extraction apparatus
Z. Unters. Nahr. Genussm.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 81A
Schoeller, A.
A micro-Kipp apparatus
Z. angew. chem.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 81A
Wheeler, T. S., and Blair, E. W.
Receiver for vacuum distillations
J. Soc. Chem. Ind., 41 (Feb. 28, 1922), 59T

PHARMACEUTICAL PREPARATIONS.

Anon
Liquid antiseptic soap
Chem. Umschau; through *Pharm. Zent.*, 63 (Feb. 16, 1922), 96
Anon
Palminum hydrargyri
Pharm. Ztg., 67 (Feb. 15, 1922), 136
Bremner, Joseph
Concentrated infusion of senega
Pharm. J., 108 (Feb. 25, 1922), 152
Fleissig
Cocaine solutions
Schweiz. Apoth. Ztg., 60 (Feb. 16, 1922), 97
Fleissig
Gelatina zinci
Schweiz. Apoth. Ztg., 60 (Feb. 9, 1922), 83
Fleissig
Tincture of iodine
Schweiz. Apoth. Ztg., 60 (Feb. 16, 1922), 96
Hardy, F.
Manufacture of bay rum
Agric. News; through *Pharm. J.*, 108 (Feb. 4, 1922), 87
Nobel, John
Incompatibility between iodine and mercuric nitrate ointments
Pharm. J., 108 (Feb. 25, 1922), 151
Prybill, A.
Suppository capsules
Apoth. Ztg.; through *Pharm. Weekbl.*, 59 (Feb. 18, 1922), 163.
Rothe, W.
Bacterial growths in raspberry juice
Ber. dtsch. pharm. Ges., 32 (Jan., 1922), 3

GENERAL BOTANY AND BACTERIOLOGY.

Monckton, C. A. W.
"Witchraft" in New Guinea
Pharm. J., 108 (Feb. 4, 1922), 100
Phillips, R. J.
Clearing the microscopic field
Analyst; through *Pharm. Weekbl.*, 59 (Feb. 4, 1922), 119
Rendel, A. B.
Aluminum succinate as a plant constituent
Pharm. J., 108 (Feb. 4, 1922), 99
Von Lippmann, E. O.
Phytochemical notes
Ber.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 117A
Zondek, S. G.
Influence of inorganic material on cell functioning
Pharm. Weekbl., 59 (Feb. 4, 1922), 104

THERAPEUTICS AND NEW REMEDIES.

Anon
Silumin
Chem. Ztg., through *Pharm. J.*, 108 (Feb. 18, 1922), 131

Bourgeois
Treatment of acute coryza
Progress med.; through *Pharm. J.*, 108 (Feb. 25, 1922), 150

Putzeys, P.
Relationship of chemical constitution and therapeutic effect of hypnotics
J. Pharm. Belg.; through *Chem. News*, 124 (Feb. 17, 1922), 95

VEGETABLE AND ANIMAL MATERIA MEDICA.

Asahina, Y., and Shimidzu, T.
Constituents of pharbitis seed
J. Pharm. Soc. Japan, 479 (Jan. 1922), 1

Bosworth
Value of dry milk products
Am. Drug., 70 (Feb. 1922), 33

Farwell, O. A.
Adulterated althaea
J. Am. Pharm. Assoc., 11 (Mch. 1922), 184

Farwell, O. A.
Source of balsam poplar buds
J. Am. Pharm. Assoc., 11 (Mch. 1922), 184

Jarno, L., and Marko, D.
Effect of opium on the stomach
Wiener klin. Wsch.; through *Pharm. J.*, 108 (Feb. 11, 1922), 112

Kroeber, L.
Primula and violet as substitutes for senega and ipecac
Pharm. Ztg., 67 (Feb. 1, 1922), 95

Ott, E., and Zimmermann, K.
Natural and artificial pepper substances
Ann.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 77A

Pater, B.
Varieties of Atropa Belladonna
Pharm. Zent., 63 (Feb. 9, 1922), 77

Rakshit, J. N.
Assay of alkaloids in Indian opium
Analyst; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 77A

Richter, E.
Tests for powdered tragacanth
Apoth. Ztg.; through *Pharm. Zent.*, 63 (Feb. 9, 1922), 83

Saito, J.
Pharmacology of ginseng
Jap. Med. World; through *Pharm. Ztg.*, 67 (Feb. 15, 1922), 135

Samek and Ssajevic
Composition of agar
Chem. Ztg.; through *J. Soc. Chem. Ina.*, 41 (Feb. 15, 1922), 112A

Ultée, A. J.
Constituents of the rubber from Ficus Vogelii
Ber.; through *Pharm. Zent.*, 63 (Feb. 2, 1922), 68

Viehoever, A., and Clevenger, J. F.
Chemical studies of veratrum
J. Am. Pharm. Assoc., 11 (Mch. 1922), 166

Viehoever, A.
New food products
Am. Food J.; through J. Am. Pharm. Assoc., 11 (Mch. 1922), 222

Wells, A. H.
Rice polishings extract in beriberi
Philippine J. Sci.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 77A

Zörnig, H., and Adler, F.
Ash content of drugs
Pharm. Zent., 63 (Feb. 2, 1922), 61

GENERAL AND PHYSICAL CHEMISTRY.

Emery, W. O., and Wright, C. D.
Distribution of chemicals between immiscible solvents
J. Am. Pharm. Assoc., 11 (Mch. 1922), 174

Friend, J. A. N.
Theory of valence
J. Chem. Soc.; through *Chem. News*, 124 (Feb. 17, 1922), 84

Hull, W.
Crystal structure of elements
J. Frank. Inst., 193 (Feb. 1922), 189

Kendall
Transmutation of elements
Pharm. Era, 55 (Mch. 1922), 94

Kolthoff, I. M.
Colorimetric determination of the hydrogen ion concentration
Pharm. Weekbl., 59 (Feb. 4, 1922), 104

Kolthoff, I. M.
Titration of fairly strong acids with very weak bases
Pharm. Weekbl., 59 (Feb. 11, 1922), 129

McLennan, J. C.
Atomic nuclei
Science, 55 (Mch. 3, 1922), 219

Parnas, J. K., and Wagner, R.
Micro-Kjeldahl assay
Biochem. Zsch.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 125

Rutherford, E.
Artificial disintegration of elements
Chem. & Drug., 96 (Feb. 18, 1922), 201

Schoeller, A.
Micro elementary analysis
Z. angew. Chem.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 125

Schoorl, N., and Regenbogen, A.
The system, water-alcohol-chloroform

Rec. trav. chim. Pays-Bas; through *Pharm. Weekbl.*, 59 (Feb. 4, 1922), 119

Smithells, A.

The Lewis-Langmuir theory of atomic structure

Chem. & Drug., 96 (Feb. 11, 1922), 166

INORGANIC CHEMICALS.

Anon

Intensive iodine treatment

J. Am. Med. Assoc.; through *Am. Drug.*, 70 (Feb. 1922), 41

Baudisch, O.

Ferro-hydrate-peroxide

Ber.; through *Pharm. Zent.*, 63 (Feb. 2, 1922), 69

Carus, M.

Separation of iron from manganese

Chem. Ztg.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 126

Dilthey, W.

Constitution of water

Z. angew. Chem.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 125

Elbs, K., and Neber, P.

Stability of persulphates

Chem. Ztg.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 126

Feulgen, R.

Production of spongy platinum

Ber.; through *Pharm. Zent.*, 63 (Feb. 16, 1922), 96

Funcke, Y.

Assay of liver of sulphur

Farm. Revy.; through *Pharm. Zent.*, 63 (Feb. 2, 1922), 69

Geick, N.

Wood charcoal in oil refining

Chem. Umschau; through *Pharm. Zent.*, 63 (Feb. 9, 1922), 80

Imison, C. S., and Russell, W.

Oxidation of ammonia

J. Soc. Chem. Ind., 41 (Feb. 28, 1922), 37T

Joachimoglu, G.

The lethal dose of arsenic

Klin. Wsch.; through *Pharm. Weekbl.*, 59 (Feb. 18, 1922), 163

Jodlbauer, A.

Action of light on potassium iodide

Pharm. Ztg., 67 (Feb. 11, 1922), 125

Kraus, J.

Volumetric assay of aluminum

Chem. Ztg.; through *Pharm. Ztg.*, 67 (Feb. 8, 1922), 116

Neumann, B.

Production of hydrochloric acid from hydrogen and chlorine

Z. angew. chem.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 55A

Neumann, B.

Safe method of uniting hydrogen with chlorine

Z. angew. Chem.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 125

Poetschke, P.

Manufacture and preservation of hydrogen dioxide

J. Ind. Eng. Chem., 14 (Mch. 1922), 181

Sabalitschka, T.

Volumetric assay of aluminum

Pharm. Ztg., 67 (Feb. 11, 1922), 124

Tiemann, F.

New theory of hydroxide formation

Chem. Ztg.; through *Pharm. Ztg.*, 67 (Feb. 11, 1922), 125

Volart y. Jubany, R.

Manufacture of hydrochloric acid and sodium hydroxide

Drogenhandler; through *Pharm. Zent.*, 63 (Feb. 16, 1922), 95

ORGANIC CHEMICALS.

Anon

Salicylic acid in the circulation

J. Am. Med. Assoc.; through *Pharm. Era*, 55 (Mch. 1922), 92

Barlot, J., and Brenet, M. T.

Fatty acid assays

Compt. rend.; through *Chem. News*, 124 (Feb. 17, 1922), 86

Bergmann, M., Brand, E., and Dreyer, F.

Synthesis of di- and tri-glycerides

Ber.; through *Pharm. Zent.*, 63 (Feb. 9, 1922), 82

Biltz, H., and Wittek, H.

Barbituric acid derivatives

Ber.; through *Pharm. Zent.*, 63 (Feb. 9, 1922), 81

Bozorth, R. M.

Crystal structure of potassium cyanide

J. Am. Chem. Soc., 44 (Feb. 1922), 317

Cajori, F. A.

The proteins of pecans

J. Biol. Chem.; through *J. Soc. Chem. Ina.*, 41 (Feb. 28, 1922), 154A

Chiris, A.

Distillation of lavender oils

Perf. Ess. Oil Rec.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 118A

Cobenzl, A.

Fluorsilicic salts

Chem. Ztg.; through *Pharm. Ztg.*, 67 (Feb. 15, 1922), 135

Curme, G. D., and H. R.

Diethyl sulphate

Chem. Met. Eng.; through *Pract. Drug.*, 40 (Feb. 1922), 34

DeLong, C. R.

Camphor substitutes

Chem. Age; through *Pract. Drug.*, 40 (Feb. 1922), 34

Denigès, G., and Tourron, R.
Microchemical detection of dulcin
Compt. rend.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 78A

Dott, D. B.
Solubility of quinine hypophosphite
Pharm. J., 108 (Feb. 4, 1922), 87

Dudley, H. W., and Evans, C. L.
Preparation of oxyhemoglobin
Biochem. J.; through *Pharm. Ztg.*, 67 (Feb. 8, 1922), 116

Ehmann, K. F.
Manufacture of anhydrous and hydrous wool-fat
J. Am. Pharm. Assoc., 11 (Mch. 1922), 188

Fischer, H. O. L.
A new derivative of quinic acid
Ber.; through *Pharm. Zent.*, 63 (Feb. 2, 1922), 67

Fosse
Assay of cyanic acid
Schweiz. Apoth. Ztg., 60 (Feb. 23, 1922), 116

Fosse, R.
Hydrocyanic acid from carbohydrates
Compt. rend.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 77A

Fresenius, W., and Grünhut, G.
Assay of salicylic acid
Z. anal. Chem.; through *Pharm. Weekbl.*, 59 (Feb. 18, 1922), 161

Fresenius, W., and Grünhut, L.
Detection of saccharin
Z. anal. Chem.; through *Pharm. Weekbl.*, 59 (Feb. 25, 1922), 191

Freudenberg, K., and Vollbrecht, E.
Tannase
Collegium; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 67A

Funk, C., and Dubin, H. E.
Vitamines of yeast
J. Biol. Chem.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 72A

Grabner
Rapic acid
Seife; through *Drug. Circ.*, 66 (Mch. 1922), 103

Howard, A., and Remington, J. S.
Safflower oil
Bull. Agr. Res. Inst. Pusa; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 109A

Jacobson, C. A.
Alfalfa saponin
Drug. Circ., 66 (Mch. 1922), 103

Joachimoglu, G.
Antiseptic aciton of chlorinated hydrocarbons
Biochem. Zsch.; through *Pharm. Ztg.*, 67 (Feb. 15, 1922), 135

Kinugasa, Y., and Tatsuno, H.
Detection of beta-naphthol in foods
Pharm. Soc. Japan, 479 (Jan. 1922), 18

Kreis, H., and Studinger, J.
Calcium content of egg albumin
Ann. Falsif.; through *Pharm. Weekbl.*, 59 (Feb. 11, 1922), 142

Lax, H.
Active principles of cod liver oil
Biochem. Zsch.; through *Pharm. Ztg.*, 67 (Feb. 15, 1922), 134

Lifschütz, I.
Reactions of gynocardia oil
Chem. Ztg.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 109A

Lynn, E. V., and Hilton, O.
Action of nitrosyl chloride on normal heptane
J. Am. Chem. Soc., 44 (Mch. 1922), 645

Margoshes, B. M., and Barn, R.
Aschman's iodine adsorption method
Chem. Ztg.; through *Pharm. Weekbl.*, 59 (Feb. 4, 1922), 121

Mezzadroli
Alcohol from St. John's bread
Bull. Assoc. Chim. Sucre; through *Drug. Circ.*, 66 (Mch. 1922), 103

Nelson, B. E., and Leonard, H. E.
Micro-detection of alkaloids as picrates
J. Am. Chem. Soc., 44 (Feb. 1922), 369

Nierenstein, M.
Gallotannin
J. Soc. Chem. Ind., 41 (Feb. 5, 1922), 29T

Nobel, John
Incompatibility between calomel and phenalgin
Pharm. J., 108 (Feb. 25, 1922), 151

Penfold, A. R.
Oil of leptospermum flavescens and of leptospermum odoratum
Proc. Roy. Soc. N. S. W.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 78A

Pepin, C.
Why "oils of" cade?
Ungerer's Bull.; through J. Am. Pharm. Assoc., 11 (Mch. 1922), 221

Pfyl, B., Reif, G., and Hanner, A.
Methyl alcohol tests
Chem. Ztg.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 78A

Porst, C. E. G., and Mumford, N. V. S.
Chemically pure dextrose
J. Ind. Eng. Chem., 14 (Mch. 1922), 217

Pritzker, J., and Jungkunz, R.
Hazel-nut oil
Z. Unters. Nahr. Genussm.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 65A

Pyman, F. L.
Glycerophosphates
Chem. Age; through *Pharm. Era*, 55 (1922), 90

Salkowski, E.
Allyl alcohol as blood preservative
Biochem. Z.; through *Pharm. Era*, 55 (March 1922), 90

Smith, H. G., and Penfold, A. R.
Thymol and menthol from eucalyptus oils
Proc. Roy. Soc. N. S. W.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 78A

Spaeth, E., and Lang, N.
Constitution of corydaline
Ber.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 117A

Spaeth, E.
Constitution of pellotine, anhalonidine and anhalamine
Monatsh.; through *J. Soc. Chem. Ind.*, 41 (Jan. 31, 1922), 77A

Spaeth, E., and Lang, N.
Conversion of berberine into palmatone
Ber.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 117A

Strauss, H., and Rammelt, G.
Catalase in the blood
Biochem. Zsch.; through *Pharm. Weekbl.*, 59 (Feb. 4, 1922), 122

Van der Haar, A. W.
Alpha-hederin
Ber.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 117A

Vaubel, W.
Varieties of caramel
Chem. Ztg.; through *Pharm. Weekbl.*, 59 (Feb. 18, 1922), 161

Vogt
Adulteration of oils and fats
Chem. Tech. Ind.; through *Drug. Circ.*, 66 (Mch. 1922), 103

Wachtel, C.
Detection of morphine in animal organs
Biochem. Zsch.; through *J. Soc. Chem. Ind.*, 41 (Feb. 15, 1922), 116A

Wacker, A.
Laboratory uses of dichlorethylene
Chem. Ztg.; through *Pharm. Zent.*, 63 (Feb. 9, 1922), 81

Weil, P. E.
Hemostatics
Am. Drug., 70 (Feb. 1922), 34

Weil, S.
Polish oil of peppermint and thymol
Rocz. Farm.; through *Pharm. Weekbl.*, 59 (Feb. 11, 1922), 142

Wiechowski, W.
The cardiacal glucosides
Pharm. Ztg., 67 (Feb. 15, 1922), 134

Wilkie, H. F.
Solvents for cellulose ethers
Chem. Met. Eng.; through *Pract. Drug.*, 40 (Feb. 1922), 34

Witte, E.
Synthesis of camphor
Chem. Ztg.; through *Chem. News*, 124 (Feb. 10, 1922), 73

Wolff, H.
Acetylation assay of alcohols
Chem. Umschau; through *J. Soc. Chem. Ind.*, 41 (Feb. 28, 1922), 156A

CLINICAL AND DIAGNOSTIC METHODS.

Beck, E.
Staining of spirochetae
Dtsch. med. Wsch.; through *Pharm. Zent.*, 63 (Feb. 2, 1922), 71

Hoeppler, E. F.
Assay of albumin in urine
Chem. Ztg.; through *Pharm. Ztg.*, 67 (Feb. 15, 1922), 135

Patzauer
Peroxide blood test
Chem. Ztg.; through *Pharm. Zent.*, 63 (Feb. 16, 1922), 97

Posner, C.
Physical methods in urine assay
Südd. Apoth. Ztg.; through *Pharm. Zent.*, 63 (Feb. 16, 1922), 95

Wester, D. H.
Influence of various chemicals and ions on the ureolytic action of urease
Pharm. Weekbl., 59 (Feb. 25, 1922), 178

MISCELLANEOUS.

Anon
Non-inflammable liquid fire extinguisher
Chem. Trade J.; through *Pharm. J.*, 108 (Feb. 25, 1922), 150

Lévy, P. P.
Sterilization of hypodermic needles
Press. méd.; through *Pharm. J.*, 108 (Feb. 25, 1922), 150

Sillar, W. C.
Advantages of prescribing by metric units
Pharm. J., 108 (Feb. 25, 1922), 152

Von Stölzner
Solvents in laundry work
Chem. Umschau; through *Pharm. Zent.*, 63 (Feb. 2, 1922), 68

Wolff, H., and Dorn, C.
Chemistry of varnishes
Chem. Ztg.; through *Pharm Ztg.*, 67 (Feb. 11, 1922), 126.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter. To maintain its activity and representation each Branch should see that at least three of its meetings during the year are reported in the JOURNAL.

CHICAGO.

The 125th meeting of the Chicago Branch of the American Pharmaceutical Association was held Friday evening, March 10, at the University of Illinois Pharmacy Building, with President C. M. Snow in the chair. Despite the stormy night the attendance was very good.

Dr. David Klein of the Wilson Laboratories, Chicago, addressed the audience on the subject of Organotherapeutics. Dr. Klein is one of the leading authorities of the country on this subject and a very entertaining speaker as well.

Dr. Klein's address was so extensive and complete and every statement of such importance that it is difficult to present a short résumé of the paper. Further, the paper will be presented for publication in full. He discussed very briefly the early use of glandular products, even referring to the empirical use of such materials in the very early ages of medicine. The names and achievements of the originators and early exponents of modern organotherapeutics were presented and interesting instances of their work brought out. Dr. Klein had an extensive series of the fresh glands, mounted beneath glass in a preservative solution, and he presented these as he discussed the methods of obtaining the glands from the slaughtered animals; how they were trimmed, defatted where necessary and desiccated in preparation for the pharmacist; and pointed out particularly the great care necessary to obtain the posterior lobe of the pituitary gland. He stated that to obtain one pound of the desiccated posterior lobe of the pituitary gland the glands from more than 23,000 cattle were required; also that the demand for ovarian substance and Corpus Luteum is so great that, despite the care with which the glands are preserved from even the smallest slaughtering establishments, it can hardly be met. If this is the case, now when the use of these substances is still limited to a relatively few physicians, what will be the demand when the use of this material has become much more widely spread in medical practice? It may be that we will have to raise cattle to supply the glands needed and use the meat as a by-product. The price of some fresh glands at the packing houses has risen to seven or eight times the figure it was a few years ago. Dr. Klein stated with detail, and emphatically, that the pharmacist should preserve these products just as carefully as though they were meat products, which in reality they are. It is inherent in these products to spoil if exposed to moist, warm air. Therefore, the bottles containing them should be kept in a cool, dry place and always well stoppered. Glands as a whole will desiccate down to $^1/_5$, $^1/_8$ or even $^1/_{10}$ of the weight of the fresh material. There is no occasion for adding milk sugar or any other diluent to the desiccated glands and any desiccated product which is labeled as of a strength less than five times that of fresh material has certainly been diluted with milk sugar or some similar substance. Furthermore, the strength of tablets of desiccated glandular material should always be specified in the weight of the dried material and not in the weight of the fresh material. He mentioned that Liquor Hypophysis, U. S. P. is much weaker than is now ordinarily used by physicians and surgeons, and that it should be increased in strength at least three times.

Prof. M. A. Miner, Wm. Gray, Prof. C. M. Snow and others took part in the discussion that followed the address.

E. N. GATHERCOAL, *Secretary.*

CITY OF WASHINGTON.

The March meeting of the city of Washington Branch, A. Ph. A., was called to order

at 8:30 P.M., March 3, at the National College of Pharmacy.

The minutes of the last meeting were read and approved, following which an invitation to meet with the Baltimore Branch was presented by the Secretary.

Mr. Hilton moved that the invitation be accepted with thanks and that the members attend a meeting scheduled for April 26th. Passed.

A nominating committee consisting of Messrs. Kalusowski, Flemer and Hilton was appointed by the chair, which, after due deliberation, reported later in the evening, renominating the present officers, who were then elected.

The officers for 1921–22 stand as follows: *President*, A. G. DuMez; *1st Vice-President*, F. L. Lewton; *2nd Vice-President*, Chas. Garrels; *Secretary-Treasurer*, H. C. Fuller.

The greater part of the meeting was devoted to a discussion of the proposed extension of the use of specially denatured or premedicated alcohol to medicines for internal administration.

Mr. Hilton presented a communication on the subject which had been drawn up by a committee representing the drug trade for submission to the secretary of the treasury. This was read by the secretary and discussed by all members present.

Mr. Hilton moved that similar resolutions be drawn up by a committee of this Branch consisting of three members to be appointed by the chair; this resolution to be submitted to the Secretary of the Treasury as coming from this Branch of the American Pharmaceutical Association.

The motion carried.

The chair appointed a committee consisting of Messrs. Mayo, Fuller and Kalusowski.

H. C. FULLER, *Secretary.*

INDIANAPOLIS.

The March meeting of the Indianapolis Branch of the American Pharmaceutical Association was held in the Chamber of Commerce Hall, Indianapolis, March 21st, at 8 P.M.

A stereopticon lecture was given by Dr. Homer W. Smith, formerly with the Hygienic Laboratory at Washington, now in the Research Department of Eli Lilly & Company. Dr. Smith's subject was "The Dynamics of Arsenic Therapy."

The annual election resulted as follows: *President*, Maurice P. Schwartz; *Vice-President*, Charles B. Jordan; *Councilor*, Francis E. Bibbins; *Secretary-Treasurer*, Ernst Stahlhuth; *Executive Committee:* Albert D. Thorburn, William F. Werner, Frank B. Fisk, Robert B. Etter, Edward H. Niles.

ERNST STAHLHUTH, *Secretary.*

BRITISH PHARMACEUTICAL CONFERENCE RESEARCH LIST.

The following items are taken from the revised Research List, 1921–22, of the British Pharmaceutical Conference:

Acetylsalicylates.—Which is the most suitable salt for pharmaceutical purposes? Do the salts possess any advantages over acetylsalicylic acid?

Animal Extracts.—An investigation of these is required, with a view to the introduction of standard products.

Apiol.—A formula for the preparation of a standard product is required.

Belladonna and Allied Solanaceous Drugs.—It is desirable to reconsider the assaying of galenicals prepared from these drugs. A method is wanted for the determination of atropine and hyoscyamine to the exclusion of other chloroform-soluble bases.

Casein Foods.—A comparative examination of the so-called "Foods" or "Nerve Tonics" of the type represented by the combination of soluble casein and glycerophosphates, etc., would be useful.

Casein (Soluble).—Details of improved processes for the preparation of soluble casein are required.

Ergot.—A reinvestigation of the pharmacy of this drug in the light of recent chemical work is required, and a method of determining the activity of the galenical preparations.

COMMITTEE REPORTS

REPORT OF COÖPERATIVE COMMITTEE, AMERICAN PHARMACEUTICAL ASSOCIATION.

(Continued from p. 142, Feb. JOURNAL A. PH. A.)

Report of the Drug Trade Board of Public Information to the Conventions of Its Constituent Bodies.

The Drug Trade Board of Public Information, organized June 30, 1920, to disseminate information of a scientific, educational and commercial character to newspapers and magazines, has entered upon the second year of its existence.

A large part of the first year was spent in collecting necessary funds from the various member Associations and the Board now has a little over one thousand dollars on which to work.

The Second Annual Meeting was held July 22 at the Congress Hotel, Chicago, and the following officers were elected:

Chairman and Director of the News Service, Dr. R. P. Fischelis; *Secretary*, C. H. Waterbury.

The Director of the News Service was empowered to issue bulletins from time to time on pharmaceutical matters which would be of interest to the public.

The first of these bulletins* was released to the press on August 25, 1921, and called attention to the conventions and activities of the American Pharmaceutical Association, the National Association of Retail Druggists, the National Wholesale Druggists' Association, the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy.

By a special arrangement with the Jason News Feature Service of New York, this bulletin *was circulated to 1300 daily newspapers and 4000 weekly papers* in the United States.

We have engaged several Clipping Services to supply us with newspaper clippings which will indicate the extent to which the bulletins have been published by the newspapers.

It is hoped that our attempt at providing proper publicity for pharmacy on a coöperative basis will be successful and further reports will be made to your Association from time to time.

Respectfully submitted,

ROBERT P. FISCHELIS, *Chairman and Director of the News Service.*
C. H. WATERBURY, *Secretary.*

Extracts from a communication of Director Robert P. Fischelis follow:

For some time past you have heard occasionally of the Drug Trade Board of Public Information, and you will doubtless recall that it was organized largely through the efforts of Dr. H. V. Arny of New York, as a part of the plan of federating the Pharmaceutical Associations of the United States.

Dr. Arny's plan was to have each of the National Pharmaceutical Associations appoint a committee on publicity and have the chairmen of these committees group themselves in a publicity board, to which the name "Drug Trade Board of Public Information" has been given. The associations coöperating in this movement are: The American Pharmaceutical Association, The American Conference of Pharmaceutical Faculties, The National Association of Boards of Pharmacy, The National Association of Retail Druggists, The National Wholesale Druggists' Association, American Drug Manufacturers' Association, The Proprietary Association of America, The American Pharmaceutical Manufacturers' Association.

The Board has held several meetings and has made a study of the publicity methods followed by various organizations. At its last meeting it was decided to issue bulletins to the newspapers periodically and to place the responsibility of issuing these bulletins in the hands of the chairman of the Board, who is also the Director of the News Service.

Since this authority was granted, six bulletins have been sent out at intervals and the response, judged by the clippings furnished by various clipping bureaus, has been very gratify-

* Bulletin No. 1 is explained and was represented in the daily press by extended notices of the conventions referred to, programs and special features of the conventions. Bulletin No. 5 is included in this report in order to show character of this publicity.

ing. The first bulletins were issued more in the way of testing out the possibilities of the service that could be rendered to pharmacy by making public certain phases of its work. It is now felt that we are on the right track and bulletins will go out periodically.

Some idea of the newspaper space given to the bulletins that have been issued so far can be gleaned from the following figures:

Bulletin No. 1 received 315 inches of space.
Bulletin No. 2 received 365 inches of space.
Bulletin No. 3 received 810 inches of space.
Bulletin No. 4 received 46 inches of space.

This refers only to the clippings sent to us.

It is generally assumed by clipping bureaus that only about one-quarter of the number of articles resulting from a publicity bulletin are recovered in the way of clippings.

Furthermore, we have confined our bulletins to a list of about 200 daily newspapers located in the large cities of the United States and the clipping bureau employed does not always cover all of these papers. * * *

We are sending these bulletins* to the secretaries of all state pharmaceutical associations and urging them to turn them over to their publicity committees for local and state use. In this way we are expanding our service and at the same time making the work of the state association publicity committees easier.

The work is being financed entirely by contributions from the eight associations which have taken part in the organization of the Board. So far the American Pharmaceutical Association, the National Association of Retail Druggists, The National Wholesale Druggists' Association, The Proprietary Association of America, The American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association, have each contributed $200, and the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy have contributed $50 each. The services of the director and secretary are purely voluntary and the only expense incurred is in the mailing and multigraphing of bulletins. When the fund thus collected runs out, the associations will be appealed to for further allowances.

If the bulletins issued meet with favor and if it is found that this national publicity service is of real value to the pharmaceutical interests of the country, it will no doubt be increased and suggestions for making it more useful are always welcome. Likewise, we are very glad at all times to receive suggestions for subjects for bulletins from all sources.

Bulletin No. 5 follows:

WHY ALCOHOL IS NECESSARY IN MAKING MEDICINES.

The modern doctor of medicine is a miracle worker compared with the medicine man of old. This is due largely to his superior knowledge born of extensive study and long observation and also to the fact that he has at his command the best facilities and highest type of medicines that modern science affords.

The making of medicines or, in other words, the practice of pharmacy, is an ancient art. In early times the medicine man selected certain herbs and roots and made teas or decoctions of them which were all but pleasant to take, yet they were often effective though sometimes fatal to the patient.

To the average man of the last generation, medicines of vegetable origin and bad tastes always went hand in hand but developments in the past fifty years, which have given us such preparations as tinctures, elixirs and fluidextracts, have largely taken the bad taste out of medicines. This has been possible because pharmacists have discovered processes and solvents by which the active part of a vegetable drug can be separated from the non-essential part. Thus highly concentrated medicines can be prepared of which a few drops are as effective as a big drink of the old-time decoctions or teas made by the primitive medicine man and his successors.

Alcohol—scientifically known as Ethyl Alcohol or Ethyl Hydroxide—is the chemical which, more than any other, has made possible this great advance in the manufacture of medicines from vegetable drugs in palatable and concentrated form. Alcohol not only extracts the valuable

* Bulletin No. 2 related to action of Wholesale Druggists' Association on bootleggers; No. 3, attitude of same body on fire insurance; No. 4, award from research fund of AMERICAN PHARMACEUTICAL ASSOCIATION; No. 5 is printed as part of this report; Nos. 6 and 7 relate to recent action on denatured alcohol for internal medication; No. 8 to progress of revision of U. S. Pharmacopoeia.

ingredients from the cells of the drug but it preserves the resulting medicinal preparation for an indefinite period. Water extracts, in addition to being weak in their action, spoil in a few days. Other solvents such as vinegar and wines were used in the earlier days of experimentation but they not only failed to extract the active material but also failed to preserve the finished medicine long enough to be stored or shipped.

Thousands of experiments have been conducted with chemicals like glycerine and other solvents in an endeavor to find a liquid which would satisfactorily replace alcohol for extraction purposes and at the same time yield a relatively non-poisonous palatable medicine but alcohol seems to be the only product known to science which possesses all the necessary qualities. It is, therefore, absolutely indispensable for the making of medicines aside from its innumerable uses in the arts and in chemical industries.

The research workers in large pharmaceutical laboratories are constantly endeavoring to cut down the percentage of alcohol in the liquids used to extract drugs because of the high cost of alcohol; but tests covering long periods of time have indicated that there is an irreducible minimum beyond which it is neither safe nor wise to pass if the full medicinal action of the drug is to be maintained. The standard alcohol percentages to be used in preparing tinctures, fluid-extracts, elixirs, etc., are prescribed in the official book of standards known as the United States Pharmacopoeia.

Under the Federal Food and Drugs Act all wholesale and retail druggists and manufacturers must guarantee that the official preparations they dispense contain the amount of alcohol and active ingredients specified in the formulas of the Pharmacopoeia.

THE CLEVELAND A. PH. A. MEETING.

THE 1922 MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION IN CLEVELAND, DURING THE WEEK OF AUGUST 14.

A consideration of the months which have passed since the New Orleans meeting of the American Pharmaceutical Association brings us to the realization that very soon the sessions of the Seventieth Annual Convention will be opened. What have you done in preparing for the annual event?

The names of the officers of the sections for this year will be found in the minutes reported in Volume X of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION: House of Delegates, p. 791; Scientific Section, p. 873; Practical Pharmacy and Dispensing, p. 876; Commercial Interests, p. 886; Historical Pharmacy, p. 972, and Education and Legislation, p. 986.

Committees appointed by President S. L. Hilton are reported on pp. 783 and 784; Officers and Committees of the Council are given on pp. 804-806; names of officers of the Association are printed on p. 238 of the March 1922 issue of the JOURNAL, and the officers-elect on p. 83 of the February number.

The Section officers are desirous of completing their programs as early as possible so as to have the papers listed in the official program. In order to do this the titles of the papers must be sent in by July 1, or very soon thereafter; the papers may be mailed somewhat later, but should be in the hands of the officers before they leave for the convention.

SCIENTIFIC SECTION A. PH. A.

Fellow Workers in Pharmacy:

In order to obtain a census of scientific pharmaceutical research and to stimulate further work, the following recommendations were adopted by the Scientific Section at its last meeting.

1. To ascertain the nature and extent of scientific work carried on by pharmacists, completed in 1921, and now in progress.

2. To urge workers to carry on at least one piece of constructive work dealing with scientific pharmacy and publish the original or an abstract in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

We cannot accomplish our task without the co-operation of those who are in a position to give it.

Should the splendid "Bibliography of Pharmaceutical Research," published monthly, be incomplete in any particular, give us the missing data.

Indicate the general nature of your studies in progress, so that duplication of work will be avoided, the scientific activity of pharmacists be more fully recognized, and new research be suggested.

Do your part in solving at least one problem connected with pharmaceutical research.

Prepare papers for publication, and at least one paper for presentation at the forthcoming meeting in Cleveland.

We count on you for full support!

Fraternally yours,

ARNO VIEHOEVER, *Secretary.*

HEBER W. YOUNGKEN, *Chairman.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: A. G. DUMEZ, *Chairman;* J. H. BEAL, IVOR GRIFFITH, R. A. LYMAN, H. B. MASON, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Collaborators: S. L. HILTON, President, A. Ph. A.; C. A. DYE, President, A. C. P. F.; L. L. WALTON, President, N. A. B. P.; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; CHARLES H. LAWALL, Chairman, Council A. Ph. A. The Chairmen of the Sections, A. Ph. A.: HEBER W. YOUNGKEN, IVOR GRIFFITH, W. H. ZIEGLER, C. W. HOLZHAUER, CURT P. WIMMER; E. F. KELLY and JEANNOT HOSTMANN of the House of Delegates; A. G. DUMEZ, Secretary of the Council, WILLIAM B. DAY, General Secretary, and H. V. ARNY, Reporter on the Progress of Pharmacy.

TRAFFIC IN ILLINOIS STATE LICENSES.

An investigation is being made by the state's attorney of charges that licenses to practice medicine and pharmacy are being sold in Illinois. Secretary H. C. Christensen, of the N. A. B. P., states, in the *Chicago Tribune* of March 20, that a condition developed under the present licensure system whereby it was possible for unqualified persons to procure licenses to practice medicine or pharmacy by the payment of a fee.

This is a lamentable state of affairs, but the exposure will result in putting a stop to such business and, let us hope, displace the system under which such traffic is possible.

INTERFERENCE WITH SALE OF DOG SOAP AND FLEA POWDER.

A French dog specialist offers the diverting announcement that the traditional and ubiquitous flea is indispensable to the health of a dog. He asserts this statement is the result of a long study of dog psychology and sums up in conclusion:

"If dogs should not be compelled to spend a large part of their time in persuasive persistent efforts against epizoons they would lose their most salutary distraction and would promptly become victims of dark and dangerous melancholy."

"David Harum" (Edward Noyes Westcott) said: "A reasonable amount of fleas is good for a dog—they keep him f'm broodin' on bein' a dog."

PARAFFIN FILM TREATMENT.

A. Kissmeyer has extended the paraffin film treatment, originally used for burns, to a number of skin diseases, and has found the method of particular service in eczema and pruritus. The film seems to induce rapid growth of the epithelium. Leg ulcers healed rapidly; eczema which had resisted other treatment for years disappeared promptly under the paraffin film; neurodermatitis, prurigo, and X-ray burns soon subsided. The composition he favors is a mixture of benzoin, 1 part; caoutchouc, 5 parts; neutral paraffin (m. p. 52° C.), 100 parts.—Through *Practical Druggist,* March 1922.

INTERNAL ADMINISTRATION INSTEAD OF INJECTION OR VACCINATION.

The press of March 14 carried the news item that Director Roux of the Pasteur Institute had made the statement to the Academy of Sciences that immunity from disease will soon be secured by swallowing dead microbes of the particular disease from which immunity is desired. "Eat and Be Cured;" "Breakfasts of Dead Microbes" were among the emanations of headliners.

A HAND POWER ICE MACHINE.

Francis T. Mann, in the *Scientific American* for April, describes a hand power ice machine of French design, intended principally for domestic use, but which has also found application in hospitals and laboratories. A small air pump is part of the apparatus. The freezing action is brought about by the rapid evaporation of the water in the vacuum which is produced by the pump. The water vapor is absorbed by sulphuric acid contained in a receptacle which forms part of the machine.

The article is illustrated, and the statement is made that a small amount of ice can be produced in about a minute. However, a further statement is to the effect that to freeze a 2-lb. block of ice will require about ten minutes.

WASTE SILVER IN THE MOTION PICTURE INDUSTRY.

Charles Alma Byers, in the *Scientific American* for April 1922, states that formerly the silver-laden waste hypo was entirely a waste product. Now it is recovered and the waste silver of the motion picture industry in Los Angeles yields on an average nearly 1000 pounds per month of metallic silver.

PERSONAL AND NEWS ITEMS.

Hugo Kantrowitz, managing editor and publisher of the *Apotheker-Zeitung,* celebrated his forty-third year of associated activity with the well and favorably known publication—the official organ of the New York German Apothecaries' Society—last month. As the age of the latter corresponds with the years of the former's connection with it, Editor Kantrowitz has no difficulty in remembering this important date even though the time between anniversaries is seemingly becoming less each year. Mr. Kantrowitz has given useful service to the American Pharmaceutical Association and he has been successful in giving his readers a monthly pharmaceutical publication of a high order; congratulations are extended with best wishes for continued success.

Cornelius Osseward, for six years a lecturer on commercial pharmacy in the University of Washington, has been appointed acting associate professor of pharmacy to fill the place of Professor Linton. Professor Osseward was graduated from Columbia and received a degree in pharmaceutical chemistry from Northwestern University. Until recently he has been proprietor of one of the largest exclusively prescription stores in Washington. He has been active in the state association and also in the American Pharmaceutical Association, his interest being largely in the Section on Practical Pharmacy and Dispensing.

Dr. Edsel A. Ruddiman, formerly dean of the School of Pharmacy, Vanderbilt University, now chief chemist for John T. Milliken Company, St. Louis, Mo., is to be the principal speaker at the annual meeting of the Kansas State Pharmaceutical Association to be held in Kansas City.

J. A. Pool, of Redfield, and **David F. Jones,** of Watertown, were among the South Dakota delegates to the annual meeting of Minnesota Pharmaceutical Association.

J. W. Collins, Amarillo, has succeeded to the presidency of Texas Pharmaceutical Association. The executive committee of Texas Pharmaceutical Association has established a scholarship in pharmacy from a fund raised by the late President **W. Arthur Skillern** to be used in the relief of druggists of San Antonio, following the flood in that city last September. The money was transmitted to the Retail Druggists' Association, who returned it and asked that it be used for a scholarship in memory of the deceased.

Dr. Jacob Diner, responding to the question, "what shall be done with the money in the treasury of the New York Retail Druggists' Association?" suggested that this serve as a nucleus for a fund to erect a centrally located building to be known as the New York Academy of Pharmacy. The building is to serve as pharmaceutical headquarters, and it is stated $50,000 for the purpose is in sight.

Samuel T. Hensel will open a new pharmacy in Denver at Sixth Ave. and Marion St.

Hon. John F. Shaffroth, ex-senator from Colorado and twice governor of the state, died February 20. Mention is made in memory of the interest he exhibited in the A. Ph. A. meeting in 1912, while he was Governor.

Howard T. Graber, director of the Chemical Laboratory of the Digestive Ferments Co., has been elected secretary of the Company.

J. Leon Lascoff, in the *Pharmaceutical Era* for March 1922, describes his prescription department, which arrangement, in his opinion, makes greatest efficiency possible.

COÖPERATIVE ADVERTISING.

Large manufacturers have inaugurated a national advertising campaign in the magazines in which the attention of the public is called to the drug store as the place for purchasing dependable spices, as well as drugs and medicines. The value of this publicity to druggists throughout the country is apparent. While this advertising campaign is primarily conducted in the interest of the advertisers, the publicity is of a type which should benefit the retail drug trade and pharmacy. "Try the drug store first" is a good slogan, but there is no value in any advertising unless its promises are made good and customers are satisfied.

OBITUARY.

AZOR THURSTON.

Azor Thurston died at his home in Grand Rapids (Wood Co.), Ohio, March 4, following a stroke of apoplexy. He was born in Erie County, Ohio, January 6, 1861. Mr. Thurston studied chemistry at Ohio State University and pharmacy at the University of Michigan. He was engaged in the drug business at Grand Rapids from 1885 to 1909; for nineteen years he was connected, as chemist, with the Ohio State Dairy and Food Department. He was a charter member and one of the organizers of the Phi Delta Chi Fraternity, the first chapter of which was organized at the University of Michigan. He was Grand President of this fraternity from 1915 to 1921.

Mr. Thurston was always active in association work, was president of Ohio State Pharmaceutical Association in 1911–1912; he joined the American Pharmaceutical Association in 1886 and was a life member. The last two papers contributed by him to the Association are printed in the January JOURNAL for 1920. The subjects are: "Oil of Sandalwood and Its Adulteration," and "The Refractive Index and Optical Rotation of Commercial Volatile Oils."

SIMON NEWTON JONES.

In a sketch of Simon N. Jones (JOUR. A. PH. A., September 1921) it was stated that he was an optimist; in the March JOURNAL reference was made to a communication in which Mr. Jones said he would soon be well again, but before that number was mailed news came of his death. He had met with an automobile accident, February 6, and this probably contributed to a stroke of apoplexy which terminated his long and useful life, March 8, at the age of 75 years.

The deceased is survived by three sisters, Mrs. Nettie J. Quin, mother of Mayor Huston Quin of Louisville, and Misses Annie and Belle Jones, and two brothers, Thomas S. and Sherman S. Jones.

Mr. Jones was a native of Louisville, a graduate of the Louisville College of Pharmacy and, later, president of this institution. For a time he owned five stores in Louisville, but at the time of his death only the one at Second and Main Sts. He was one of Louisville's foremost citizens, highly respected, and few were more beloved.

Mr. Jones was one of the organizers of the National Association of Retail Druggists, a past president and honorary life member of that organization; he joined the American Pharmaceutical Association in 1870.

WILLIAM BRYANT CHEATHAM.

William B. Cheatham, president of the Associated Pharmacists, Inc., Brooklyn, N. Y., died February 15, of heart failure. Mrs. Cheatham died about two years ago and since then Mr. Cheatham had been in poor health. He was born at Trenton, Tenn., December 28, 1862, and on the distaff side was a descendant of Daniel Boone. For a number of years Mr. Cheatham was organizer for the National Association of Retail Druggists of which organization he was in more recent years vice-president. His association work was largely among druggists of the Pacific Coast where he also for a time represented the American Druggists' Syndicate. A daughter, Mrs. Ida Hosse, Nashville, Tenn., survives the deceased. Mr. Cheatham joined the American Pharmaceutical Association in 1917.

SOCIETIES AND COLLEGES.

DISCUSSION OF THE U. S. PHARMACOPOEIA IN CUBA.

We are in receipt of a communication from the College of Pharmacy, Havana, Dr. Ignacio G. Noble, Secretary, and Dr. Juan Guiteras, Secretary of Health and Charity, Havana, in which papers relating to the revision of the U. S. Pharmacopoeia are invited, and a prize offered for the best paper in accordance with certain provisions. The committee of judges is composed of Dr. José G. Diaz, *Chairman;* Dr. Gerardo F. Abreu, Rosa T. Lagomasino, Felipe de Pazos, and Ignacio G. Noble, *Secretary.* The papers will be read May 15 and 28. All physicians and pharmacists of Cuba have been invited to take part in this work. As is generally known, our esteemed fellow member, Dr. José Guillermo Diaz, translated the U. S. Pharmacopoeia IX into Spanish, and this is officially recognized in Cuba.

FIRST PHARMACEUTICAL CONGRESS OF BRAZIL.

Ex-President Caswell A. Mayo has sent to this office an article from a Brazil medical

journal of February 1922 which announces the organization of the first Pharmaceutical Congress of Brazil. Only pharmaceutical matters are discussed by this body and the main purposes are to study the Pharmacopoeia and prepare for its revision, and the foundation of a college of pharmacy. The Director of the National Board of Health, and the Inspector of the University of Medicine and Pharmacy have expressed a willingness to coöperate with the Congress in matters relating to the Pharmacopoeia.

AMERICAN DRUG MANUFACTURERS' ASSOCIATION.

Instead of being held May 22–25 as originally announced, the Eleventh Annual Meeting of the American Drug Manufacturers' Association will be held June 5–8. The change in date was made in order to avoid conflict with the dates of the meeting of the American Medical Association which will be held during week of May 22nd. The American Drug Manufacturers' Association's meeting will be held at the Biltmore Hotel in New York City.

AMERICAN CHEMICAL SOCIETY.

The sixty-third meeting of the American Chemical Society was held in Birmingham, Ala., April 3–7. Among the addresses of public interest were the following: "The Remarkable Development of the South and Its Relations to the Chemical Industry," by William H. Stone of the *Manufacturers' Record*, and "The Flower Fields and the Organic Chemist," by Marston Taylor Bogart.

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION MOVE OFFICES.

The National Wholesale Druggists' Association has moved its offices to 51 Maiden Lane, New York City. The new quarters have about twice the floor space of former offices.

CONFERENCE OF TRADE ASSOCIATIONS IN WASHINGTON.

A conference, called by Secretary of Commerce Hoover, was held in Washington April 12. The purposes of the conference as outlined in an announcement from the Department of Commerce are as follows:

"1. Securing a list of trade associations that will furnish voluntarily to the Department of Commerce the classes of statistical information outlined in the correspondence between the Department of Commerce and the Department of Justice, published on Feb. 16, 1922.

"2. Discussing and considering means and methods that may best be adapted for collecting and forwarding to the Secretary of Commerce, for dissemination, the classes of statistical information outlined in the correspondence referred to, including the forms of reports that will be most suitable for associations that are willing to furnish such statistical information.

"3. Discussion of the manner in which such reports of the statistical officer of the associations are to be filed with the Department of Commerce, and the manner and method of distributing the information therein to the members of the associations and to the public."

AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION.

The American Pharmaceutical Manufacturers' Association will hold its annual meeting at Bedford Springs, Pa., from June 12–17. A most interesting and important program is being arranged by the officers of the Association. The general offices are at 32 Liberty Street, New York City.

UNITED MEDICINE MANUFACTURERS OF AMERICA.

The first annual convention of the United Medicine Manufacturers of America will be held in the Hotel William Penn, Pittsburgh, Pennsylvania, April 24–27, inclusive. The secretary is A. L. Liljestrom, Chicago; James F. Pickett, Washington, D. C., is president.

ARKANSAS ASSOCIATION OF PHARMACISTS.

Arkansas Association of Pharmacists will convene in fortieth annual session at Little Rock May 9–11.

CALIFORNIA PHARMACEUTICAL ASSOCIATION.

California Pharmaceutical Association will hold its annual convention at Catalina Islands May 23–25, with a preliminary meeting in Los Angeles on the 22nd.

OKLAHOMA PHARMACEUTICAL ASSOCIATION.

The annual convention of Oklahoma Pharmaceutical Association was held in Oklahoma City April 11–13 at Huckins' Hotel.

NEW YORK RETAIL DRUGGISTS' ASSOCIATION CELEBRATES TWENTY-FIFTH ANNIVERSARY.

The New York Retail Druggists' Association celebrated its twenty-fifth anniversary by a banquet and ball given at the Commodore Hotel. Nearly nine hundred persons were present. Dr. Jacob Diner spoke on the growth

and aims of the organization and presented a gold watch to Peter Diamond, honorary president and one of the organizers.

Dr. Royal C. Copeland was a guest of honor and expressed his appreciation for the cooperation he has received from pharmaceutical organizations in the city. President Edward Sher and Financial Secretary B. Miller discussed briefly the activities and aspirations of the society.

NORTH CAROLINA PHARMACEUTICAL ASSOCIATION PUBLISHES A DIRECTORY.

Secretary J. G. Beard of the North Carolina Pharmaceutical Association has compiled a directory of the druggists of North Carolina, both wholesale and retail. The population of towns and cities is given. The list has been carefully prepared and will serve as a convenient reference.

MINNESOTA PHARMACEUTICAL ASSOCIATION.

The following resolutions were passed by the Minnesota Pharmaceutical Association:

"That the Association in convention assembled reaffirm its affiliation with the A. Ph. A., and send two delegates to the seventieth annual convention of the American Pharmaceutical Association to be held in Cleveland.

"That the M. S. P. A. approves the House of Delegates' plan and that the sum of $100.00 be sent for the ensuing year."

The drug and chemical exhibition was a great success and it is expected to repeat this on a larger scale next year, inviting the Northwest to participate.

The following officers were elected for the ensuing year: *President*, Harry Trowbridge, Austin; *First Vice-President*, Jack Pasternacki, Virginia; *Second Vice-President*, John W. Dargavel, Minneapolis; *Third Vice-President*, Frances Greenwalt, St. Paul; *Secretary*, Gustav Bachman, Minneapolis; *Treasurer*, Myron A. Karras, St. Paul; *Executive Committee*, Edw. A. Grochau, Duluth, for three-year term; E. A. Tupper, Minneapolis, for two-year term.

COLLEGE OF PHARMACY OF THE CITY OF NEW YORK, COLUMBIA UNIVERSITY.

The annual meeting of New York College of Pharmacy was held March 21. Among the pleasing reports was that of Treasurer Clarence O. Bigelow who announced the liquidation of the college indebtedness which at one time amounted to $135,000.

The officers elected for the ensuing year are: *President*, Nicholas Murray Butler; *Honorary President*, Charles F. Chandler; *Honorary Vice-President*, William J. Schieffelin; *Vice-Presidents*, Henry C. Lovis, Reuben R. Smith and Edward Plaut; *Treasurer*, Clarence O. Bigelow; *Secretary*, Charles W. Holzhauer; *Assistant Secretary*, Arthur J. Bauer; *Trustees*, Albert E. Stratton, Howell Foster, Richard Timmermann, Adolph Henning, Frank C. Starr, Charles Friedgen, and J. Leon Lascoff.

UNIVERSITY OF NORTH CAROLINA COLLEGE OF PHARMACY.

Great interest and enthusiasm is being manifested in the William Simpson Pharmaceutical Society this year by the pharmacy students of the University of North Carolina. The society was founded by the Class of 1913 and was named in honor of William Simpson, a pioneer North Carolina druggist and teacher, and one time president of the American Pharmaceutical Association.

This is the 25th anniversary of the College. A recently passed law in North Carolina makes graduation from a reputable college of pharmacy a prerequisite to registration as pharmacist.

THE PHARMACIST AND THE LAW.

COMMITTEE TO DRAFT MODEL STATE NARCOTIC LAW.

A Conference of the Committee of the American Medical Association on Narcotic Drug Control and representatives of organizations of Veterinarians, Dentists, Pharmacists, and of the trades and industries supplying these professions with narcotic drugs, was held in New York City, March 2, 1922. Dr. Haven Emerson, Dr. Thomas S. Blair and Dr. Alfred C. Prentice constitute the committee of the American Medical Association.

Dr. Emerson, who presided as chairman, stated at the opening that "the specific and only object of this conference is to see whether we can come to an agreement in respect to uniform state laws which will supplement the Harrison Act, in order that there may be unanimity of professional and trade coöperation back of the narcotic drug law."

After considerable discussion it was decided that a model narcotic law should not be a tax law; that it should control the distribution of narcotic drugs, limiting to the utmost every possible abuse, while conserving the absolute right and duty of the practitioner to exercise his judgment regarding their proper use in the lawful practice of his profession. That such a law should closely follow and in no way conflict with the provisions of the federal law. That the machinery of enforcement of a state law should be as simple as possible consistent with effective operation.

It was pointed out that a model state law must be drawn with great care, taking into consideration the constitutions of the states, and it must be an expression of the police power of the state. In some states a very simple law would do—perhaps simply a bill referring to the Harrison Act—while other states cannot legislate by reference. That unnecessary duplication of records under the federal and state law should be eliminated or, rather, that the state accept the records kept under the Harrison Act. That this Conference is of the opinion that regulations should not be issued in the state in conflict with the Harrison Act.

The question of ambulatory treatment came up, and it was decided that this was entirely a matter for the medical profession to decide. That any reference to a definition of medical practice in the state law be not considered at this time, and not until a decision of the Supreme Court under the Harrison Act has been reached.

It was approved that unlawful possession of narcotic drugs should be made *prima facie* evidence of violation of the narcotic laws. That the subject of treatment and care of drug addicts in the state be considered separate from features of the state law controlling the narcotic drug trade, and is not a matter for consideration at this time. That the matter of enforcement of the state law be left for decision by the state. That penalty for violation of the narcotic laws should include the power to suspend or revoke the license to practice. The Conference favored that the Narcotic Drug Enforcement Division be separated from the Prohibition Division.

The Committee for drafting the model law is composed of Dr. J. H. Beal, *Chairman*, Urbana, Ill.; Arthur D. Greenfield, Esq., 52 Broadway, New York City; Mr. C. H. Waterbury, 99 Nassau St., New York; Dr. Thomas S. Blair, The State Department of Health, Harrisburg, Pa.; J. P. Chamberlain, Esq., *Secretary*, 510 Kent Hall, Columbia University Legislative Drafting Bureau.

OPIUM ADVISORY COMMITTEE OF THE LEAGUE OF NATIONS.

The Opium Advisory Committee of the League of Nations will meet in Geneva, April 19. Mrs. Hamilton Wright will be in attendance; she is one of the three experts appointed by the Council of the League of Nations, in addition to representatives of eight nations primarily interested in opium trade.

U. S. SUPREME COURT HOLDS AGAINST UNREASONABLE PRESCRIPTIONS AND PLEAS OF IGNORANCE.

Two decisions bearing on enforcement of the Harrison Anti-Narcotic Act were handed down March 27 by the Supreme Court. In one the Court held in effect a physician is prohibited under the act from prescribing narcotics to drug addicts in exceptionally large doses and in the other declared that in prosecutions under the act it is not necessary for the Government to charge in the indictment that those selling the drugs "knowingly" violated the law.

Both cases came up from the United States District Court for the Southern District of New York, the District Court decision being reversed in each instance.

The first case was that of a physician of New York, who, the indictment charged, had unlawfully provided a drug addict with three prescriptions calling for 130 grains of heroin, 360 grains of morphine and 210 grains of cocaine, which, according to Mr. Justice Day's opinion, was equivalent to more than 3,000 ordinary doses of the drugs. The addict secured the drugs, with nothing to restrain him from disposing of them to others. The Supreme Court held:

"We hold that the acts charged in the indictment constituted an offense within the terms and meaning of the act. The judgment of the District Court to the contrary should be reversed."

PROHIBITION AND TAXES.

The great majority of pharmacists prefer not to have anything to do with dispensing of whisky, even for medicinal purposes. It is not a question to be argued here, whether it is proper to speak of money as of any relative value in a matter of moral achievement or whether cost of prohibition can be considered extravagant in comparison with the former wastage due to alcohol.

With deficit coming in the federal treasury and new taxes threatening, people are thinking on these matters; even *The Atlantic Monthly* for April seems to have thought it worth while to present figures.

L. Ames Brown in an article, "The Money Cost of Prohibition," presents the figures referred to; the opening paragraph reads:

"The fight for prohibition is over. It is far from my purpose to awaken the old and bitter controversy. Rather it is because prohibition is now our adopted and definitive policy, that it seems worth while to find out approximately what it cost in dollars and cents."

He summarizes its computations in the statement that in 1921, "Federal, state and city governments were deprived of approximately $472,000,000 of revenue derived from liquor revenues," and that "an expenditure hardly less than $25,000,000 but possibly much larger, was made for inadequate enforcement." "If we deduct $65,000,000," Mr. Brown continues, "to cover soft drink taxes and federal fines and seizures, we still have a minimum prohibition cost exceeding $400,000,000, a sum greater than the taxpayers will be saved in a year by the Hughes limitation-of-armament proposal."

BILL TO REGULATE DRUG STORES PASSED BY NEW YORK SENATE.

The New York Senate has passed the Bloomsfield bill regulating drug stores and providing that only licensed pharmacists shall be allowed to operate them. Both members of a partnership operating a drug store must be pharmacists under this bill, which is aimed at "mushroom" drug stores whose principal business is said to be dealing illegally in liquor.

EVERY REGISTERED KENTUCKY PHARMACIST A MEMBER OF THE STATE ASSOCIATION.

As a result of the efforts of the legislative committee of the Kentucky Pharmaceutical Association the state pharmacy law was amended to provide an increase in the annual renewal fee from two dollars to four dollars; the board of pharmacy to turn over to the state association a sum not to exceed two dollars, thus automatically making every registered pharmacist a member of the state organization.

BOOK NOTICES AND REVIEWS.

Pharmazeutischer Kalender 1922. Herausgegeben von Ernst Urban. 62. Edition. In 2 parts. Berlin, Verlag von Julius Springer.

Truly a credit to pharmacy that one of her sons, a practical pharmacist, Hermann Hager, originated as early as 1860 this "Pharmazeutische Kalender." It is perhaps one of the minor works of Hager, but nevertheless it remains as an everlasting monument to The Master of Pharmacy, better than marble or bronze. During the first 19 years Hager himself edited this Kalender. Since then such authorities as Ewald Geissler, Bernhard Fischer, George Arends, Arends and Urban and now Ernst Urban, editor of the *Pharmazeutische Zeitung*, Berlin, edit the work.

Part I, the Pharmazeutische Taschenbuch, is substantially bound in leather, and besides the calendar part contains very valuable information for prescription department and laboratory, as can be seen from the following few headings: Rules for Dispensing, Latin, Homeopathic and Alchemistic Abbreviations, Maximum Doses, New Remedies, Poisons and Antidotes, Incompatibilities, Disinfection, Removal of Medicine Stains, Formulae Magistrales Berolinenses, Photographic Formulas, Specific Gravity, Extract- and Ash-Content of Drugs, Dry Residue of Tinctures and Fluid-extracts, Analytical Constants, many tables, etc.

Part II, the Pharmazeutische Jahrbuch, is unbound and is divided as follows: 1, Pharmaceutical Jurisprudence, containing laws and ordinances; 2, Handbook containing Pharmacy Schools and Universities and their Faculties, Boards of Pharmacy, Statistics, Literature, Associations and Pharmacies and Pharmacists in Germany, Luxemburg, Switzerland and Holland, together with a very complete Index; 3, Buyers' Directory and Advertisements.

This "Pharmazeutische Kalender" is a "Multum in parvo," a ready and handy reference book, which will be of great service to the German-reading pharmacist. The Kalender should also be better known outside of the "Vaterland," especially in the United States, as it would greatly help to develop and improve professional pharmacy.

OTTO RAUBENHEIMER, PH.M.

Two books have been received for review, written by Dr. Abraham Myerson, Visiting Physician, Nervous Department, Boston City Hospital and Beth Israel Hospital, and Assis-

tant Professor of Neurology, Tufts College Medical School. The publishers are Little, Brown & Co., Boston.

The Foundations of Personality. Crown 8 vo. Cloth, 406 pages, $2.25. The intercourse with our fellow-men is based largely upon our understanding of their character, and upon our success in reading the character of others depends a great deal our own life's success or failure. The customer inquires about the merchant, "Is he honest?," the teacher asks about the pupil, "Is he earnest?" and the maiden yearning for her lover whispers to herself, "Is he true?"

Dr. Myerson analyzes the fundamentals of character. Character types are described, their traditions and social heredity. The energies of man are traced as they expend themselves in emotion, instinct and intelligence. Although the author naturally writes from the standpoint of the physician and psychologist, his attitude in this book is chiefly that of one who shares deeply in the every-day aspirations and conflicts of his fellows. We can therefore heartily recommend the book.

The Nervous Housewife. Crown, 8 vo. Cloth, 273 pages. $2.25. Modern life, by changing the position of woman, has increased the difficulties of the housewife. To her natural burdens there have been added a divided loyalty and a restless dissatisfaction with her lot. Out of this chiefly comes the nervousness of the housewife, a disease of occupation. The book analyzes the sources of the housewife's difficulties and traces their effect in her aches and pains, her complaints, her moods and changed emotions. It aims to discover the housewife to herself, to give her husband understanding and sympathy, and to teach the physician and society how to help her.

The wives of most pharmacists are of a nervous disposition, principally due to the husbands' absence from home. It is their duty to read this book, which, despite the author's fund of scientific knowledge, is written simply and clearly.

OTTO RAUBENHEIMER, PH.M.

PUBLICATIONS RECEIVED.

The Popular Chemical Dictionary. By C. T. Kingzett, F.I.C., F.C.S., author of "The History, Products and Processes of the Alkali Trade;" "Animal Chemistry; or, The Relations of Chemistry to Physiology and Pathology;" "Native Hygiene and Sanitary Chemistry;" "Chemistry for Beginners and School Use"—Past Vice-President, Society of Public Analysts; and one of the original founders of the Institute of Chemistry, Great Britain.

The Dictionary has 547 pages; $5^1/_2$ x $8^1/_4$. Cloth. Price, $4.50. D. Van Nostrand Company, 8 Warren St., New York.

Fiftieth Anniversary Number of Oil, Paint and Drug Reporter, March 28, 1922. Fifty years of progress in the industries served by the *Reporter.* A congratulatory letter from President Harding honors the title page, and on another page is a note from Secretary Hoover. The edition contains interesting history, useful information and valuable data. Congratulations were extended in October 1921 JOUR. A. PH. A., pp. 813–814.

A Consideration of Arsphenamine and Certain Other Organic Arsenic Compounds Used in the Treatment of Syphilis. By George B. Roth, M.D., Pharmacologist Hygienic Laboratory, United States Public Health Service.—Reprint No. 688 from the *Public Health Reports.* Copies may be had from the Government Printing Office for 5 cents.

Keeping Qualities of Market Samples of Neoarsphenamine while in Ampule. By George B. Roth, M.D., Pharmacologist, Hygienic Laboratory, United States Public Health Service.—Reprint No. 700 from the *Public Health Reports.* Copies may be had from the Government Printing Office, Washington, D. C., for 5 cents.

Official Proceedings of the Forty-Second Annual Convention of the Texas Pharmaceutical Association, held in San Antonio, June 15–17, 1921. The next meeting in Fort Worth, June 13–15, 1922, at Texas Hotel, is announced.

NEW PUBLICATIONS.

Dietetics: A Laboratory Handbook for Dietetics. By Mary Schwartz Rose. Revised edition. 156 pp. Price, $2.10. The Macmillan Co., New York.

Drug Industry: The Brown Book: Credit Guide and Reference Book, Published for the Drug, Chemical and Allied Lines throughout the United States. Drug and Chemical Association. 1500 pp. Price $50.00 net. Drug and Chemical Credit Association, New York.

Dyes: Matières Colorantes Artificielles: Leur Fabrication et leur Emploi. By H. Vassart. Preface by J. Garçon. 233 pp. Price, paper 30 fr. Albin Michel, Paris.

Edible Fats and Oils, Their Composition, Manufacture and Analysis. By W. H. Simmons and C. Ainsworth Mitchell. 2nd revised and enlarged edition. 192 pp. Price 11s. Scott, Greenwood & Son, London.